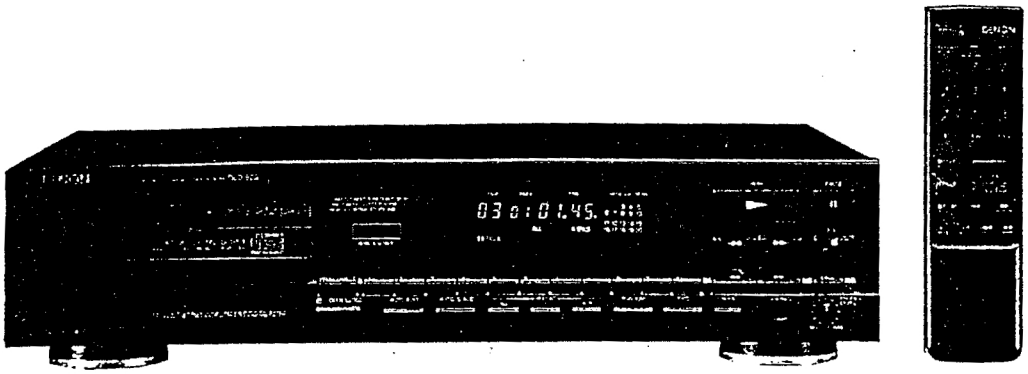
DENON

Hi-Fi Component

SERVICE MANUAL

STEREO CD PLAYER

MODEL DCD-920



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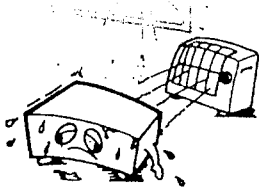
NIPPON COLUMBIA CO., LTD.

NOTE ON USE

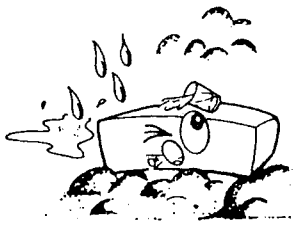


Be careful of high temperatures.

- Do not place the amplifier where it will be exposed to direct sunlight or close to heating devices.

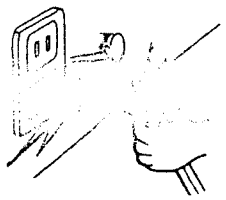
Installation in a cabinet

- Avoid installing the amplifier in a sealed, airtight cabinet.
- If a cabinet is to be used, make certain that the amp is placed in a well-ventilated section.
  If necessary, cut out sufficient space in the cabinet walls to allow heat to escape.



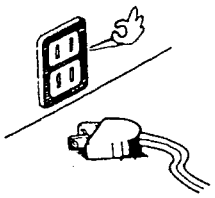
Humidity, water and dust must be prohibited.

- Do not place the amplifier in dustry areas or those subject to high humidity.
  Do not place vases or other containers filled with water on top of the equipment.



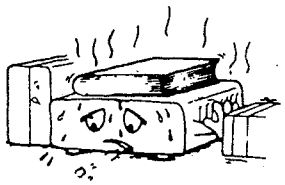
Be careful with the power supply cord.

- Do not pull out the plug by yanking on the power supply cord. Always take the plug in hand pull it out.



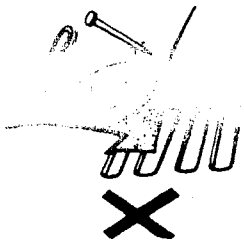
During your absence.

- If no one will be in the room for a long period and the amplifier is not being used, make certain to pull out the plug from the wall socket.



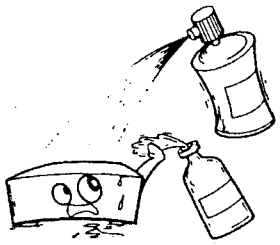
Do not place objects on top of the ventilation holes.

- Placing objects on top of the ventilation holes will result in malfunction.
- The ventilation holes are extremely important in allowing heat to escape from the amplifier. If they are covered up, the internal temperature of the amplifier will rise abnormally. Be careful to avoid this.



Do not allow foreign matter to get inside the equipment.

- Do not allow needles, hairpins, coins, etc. to slip inside the amplifier.



Handling the cabinet.

- The quality and color of the cabinet will be affected if it is exposed to insect repellent or solvents such as benzene or paint thinners. Do not use these on the cabinet.
  To remove dirt, use a soft cloth. Be sure to read and follow the instructions before using chemically treated cloth.

Do not open the cabinet.

- It is extremely dangerous to open the cabinet or its bottom lid and reach inside. Do not open the amplifier.
  If a problem occurs with the equipment, unplug the power supply cord at once, and contact the store where you purchased the amplifier.

FEATURES

The DCD-920 Compact Disc Player incorporates DENON's Super Linear Converter which prevents deterioration of sound quality in PCM playback systems. This assures accurate reproduction of the digital signals recorded on compact discs no matter whether they are pure studio recordings or "live" performance recordings. All parts making up this CD player have [illegible] to produce high quality sound, [illegible] of the full musical content on compact discs.

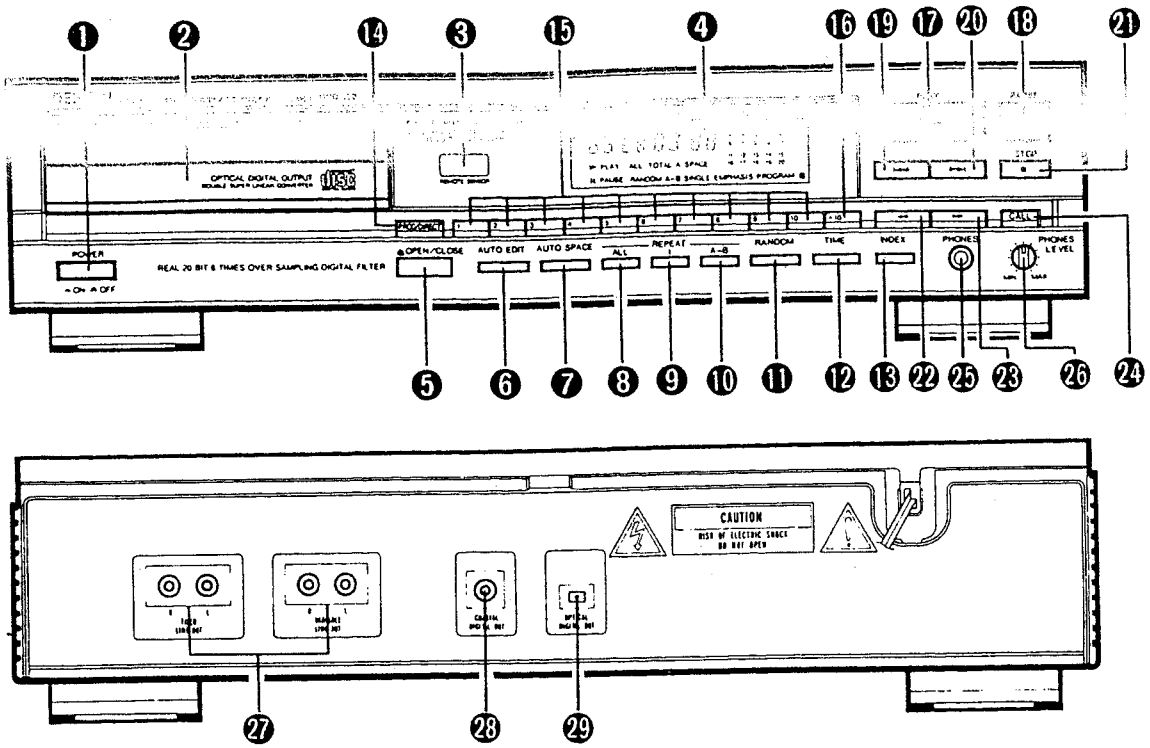
(1) **Real 20-bit Double Super Linear Converter**
The use of Denon's unique system and D/A converters with excellent resolution to prevent zero cross distortion, the main cause of reduced sound quality in the PCM playback system, make for sound field reproduction with rich musical expression.

(2) **High Performance Digital Filter**
The DCD-920 uses independent Real 20-bit D/A converters for the left and right channels and an 8x oversampling high precision digital filter to bring out the best of the analog filter and offer clear, crisp sound.

(3) **Remote Control Including Volume Control**
Aside from such functions as play, pause, stop and direct search using the number buttons, the remote control unit also offers volume control using the "+" and "–" buttons. The remote control functions greatly enhance operability of the DCD-920.

(4) **Digital Output**
The information on the compact disc can be [illegible] digital form to an external digital processor or D/A unit for playback.
Aside from the coaxial output, the DCD-920 also includes an optical output, thereby improving sound quality and eliminating noise interference.

(5) **Simple Playback of 8 cm CD Singles**
8 cm CD signals can be played without using an adaptor.



❶ Power Switch (POWER)

- When the power is turned on, "(00)" appears on the TRACK NO. display, and if no disc is loaded, "00:00:00" appears on the digital display and the calendar lights after a few seconds.
- If the power is turned on with a disc already loaded, the total number of tracks on the disc is displayed on the TRACK NO. display, the total time is displayed on the TIME display, the numbers on the music calendar light up to the number of tracks on the disc, and playback begins.

❷ Disc Holder

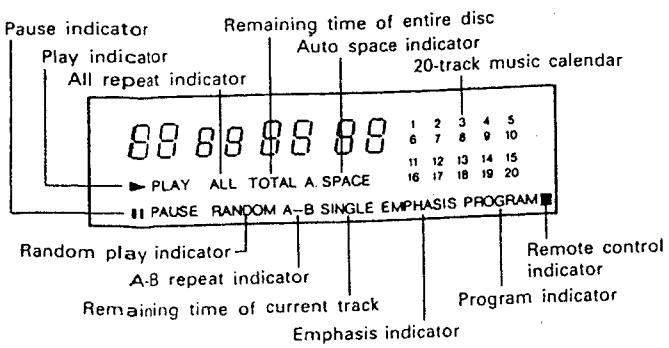
- Place the disc on the disc holder with the label facing up.
- Use the open/close button (⏏ OPEN/CLOSE) ❺ to open and close the disc holder.
- The disc holder may also be closed by pressing the play button (▶ PLAY) ⓱ or pause button (⏸ PAUSE) ⓯.

❸ Remote Control Sensor

- This sensor receives the infrared light transmitted from the wireless remote control unit.
- For remote control, point the supplied remote control unit RC-220 towards this sensor.
- When a signal is transmitted from the remote control unit, the remote control indicator in the display ❹ will light up briefly.

❹ Display

- The digital display is divided into sections, such as displays for track number, index, playback time and calendar, as shown below.



❺ Open/Close Button (⏏ OPEN/CLOSE)

- The disc holder is opened and closed by pressing this button.
- Press this button once to open the disc holder, and once again to close it.
- When the disc holder is closed with a disc loaded, the disc will rotate for a couple of seconds while the disc contents are read.
- The number of tracks and total playback time on the disc are then displayed on the digital display ❹.

❻ Auto Edit Button (AUTO EDIT)

- The tracks on a CD are automatically split into two halves, Side A and Side B, like an analog disc, with the division at the place between tracks which is closest to 1/2 the total playing time and with the tracks remaining in the same order.
- When this button is pressed in the stop mode, the total playing time for the first half and the track numbers on the calendar are displayed for approximately 2 seconds. Next, the same is done for the second half, after which the unit is automatically set to the pause mode at the beginning of the first track. When the PLAY or PAUSE button is pressed, playback begins, and the unit is automatically set to the pause mode at the beginning of the first track of the second half which was previously displayed. When the PLAY or PAUSE button is pressed again, playback begins, and the unit is automatically set to the stop mode at the end of the last track on the disc.
- This function will only work for discs with a total of 20 tracks or less. Also, when this function is used the mode is automatically set to the program mode, so direct search is not possible.
- The auto edit function is cleared when the STOP or PROG/DIRECT button is pressed.
- The data for the total playing time recorded on the disc and the actual total playing time of the tracks differ, so there may be a difference between the time displayed in the stop mode (the total playing time) and the total of the times of the first and second halves in the auto edit mode (about 2 seconds).

⑦ Auto Space Button (AUTO SPACE)

- Pressing this button will cause the [A. SPACE] indicator to light and a blank space of approximately 4 seconds is inserted between tracks during CD playback. Pressing the button once more, the [A. SPACE] indicator goes out and the Auto Space feature is cancelled.
- When one of the track search buttons (⏮ or ⏭) is pressed, the Auto Space functions will not operate.
- Although 4-second blanks are inserted between tracks, this additional time is not reflected by the indication on the time remaining display or time display when the Auto Edit function is engaged.

⑧ Repeat All Tracks Button (ALL)

- Press this button to repeat playback of all tracks.
- When this button is pressed, [ALL] lights on the display and all tracks on the disc or in a program will be repeatedly played back. Press this button once more to disengage the Repeat All function.

⑨ 1-track Repeat Button (1)

- Press this button to repeat one track only.
  When pressed during playback, the track currently playing is repeated.

⑩ A-B Repeat Button (A – B)

- Press this button for repeat playback between a designated starting point (A) and an ending point (B). (Refer to page 8 for details.)

⑪ Random Play Button (RANDOM)

- Press this button to play the tracks on the disc in random order.

⑫ Time Mode Button (TIME)

- This button is used to select the desired indication on the TIME display. The indication on this display will change each time the button is pressed.
  Normally, the elapsed playback time of the current track is displayed.
  Pressing the button once, [SINGLE] is displayed and the remaining time of the current track is displayed.
  Pressing once more, [TOTAL] is displayed, and total playing time of remaining tracks is displayed. However, when programmed play is in progress, the total remaining time of the program is displayed.
  Press the button once again to return to the normal display of the elapsed playback time of the current track.

⑬ Index Button (INDEX)

- Press this button to start playback from an index within a track. Use the number buttons to specify the index number.

⑭ Program / Direct Button (PROG / DIRECT)

- Press this button when you want to enter tracks for programmed playback. (Refer to page 7 for details.)

⑮ Number Buttons (1, 2, 3, 4, 5, 6, 7, 8, 9 and 10)

- Use these buttons for the direct search and program memory functions.
  For direct search, press for example button [3] if you want to hear track number 3. For track number 12, press [+10] then [2].
  To program tracks, press the PROG/DIRECT button to set to the program mode.

⑯ +10 Button (+10)

- Press this button first when selecting track numbers over 10. Use it together with the number buttons. For example, to select track number ⑮, press [+10] then [5].
  For track number 33, press [+10] three times, then press [3].

⑰ Play Button (▶ PLAY)

- Press this button to start playback of a disc.
- When this button is pressed, [▶ PLAY] is displayed, and the track number being played is displayed together with the elapsed playback time of the track.
- Tracks are shown on the calendar display. Once a track has been played, the corresponding track number goes out on the calendar display.

⑱ Pause Button (II PAUSE)

- Press this button to stop playback temporarily.
- If this button is pressed during playback, playback is stopped temporarily, the [▶ PLAY] indicator goes out and the [II PAUSE] indicator lights.
- Press this button or the play button (▶ PLAY) again to continue playback.

⑲ Automatic Search Reverse Button (⏮)

- Press this button to return the pickup to the beginning of the present track. Press again to return to other tracks.
- By pressing the button a number of times, the pickup will move back the corresponding number of tracks.

⑳ Automatic Search Forward Button (⏭)

- Press this button to move the pickup forward to the beginning of the next track. Press again to move ahead to other tracks.
- By pressing the button a number of times, the pickup will advance the corresponding number of tracks.

㉑ Stop Button (■ STOP)

- Press this button to stop playback.
  The disc will stop rotating, and the number of tracks and total playing time of the disc are displayed on the TRACK NO. and TIME displays, respectively.
- In case programmed playback is engaged when this button is pressed, the number of tracks and total playing time of the program are displayed.
- If this button is pressed in the stop mode, the program memory is cleared.

㉒ Manual Search Reverse Button (◀◀)

- Press this button during playback for fast reverse search. As long as the button is kept pressed, music signals are played back faster than normal.
- Pressing this button when the pause mode is engaged, you can quickly reverse the pickup to a desired position, three times faster compared to manual reverse search during playback. During this time, no sound is heard.

㉓ Manual Search Forward Button (▶▶)

- Press this button during playback for fast forward search. As long as the button is kept pressed, music signals are played back faster than normal.
- Pressing this button when the pause mode is engaged, you can quickly forward the pickup to a desired position, three times faster compared to manual forward search during playback. During this time, no sound is heard.

㉔ Call Button (CALL)

- Press this button to check the tracks which have been programmed.

㉕ Headphones Jack (PHONES)

- For private listening, you can connect your headphones to this jack. Do not raise the volume level too much when listening through headphones. (Headphones are sold separately.)

㉖ Volume Control (PHONES LEVEL)

- Use this to adjust the output level (VOLUME) of the headphones and line output (VARIABLE).
- The same operation is possible using the included remote control unit. (See Page 11)

㉗ Output Terminal (FIX-VARIABLE)

- Connect these jacks to the input jacks on your amplifier. (Refer to page 6 for details on the connections.)

㉘ Digital Output Jack (COAXIAL)

- This jack outputs digital data.
- We recommend using a 75-ohm pin cord (available in stores) for connections.

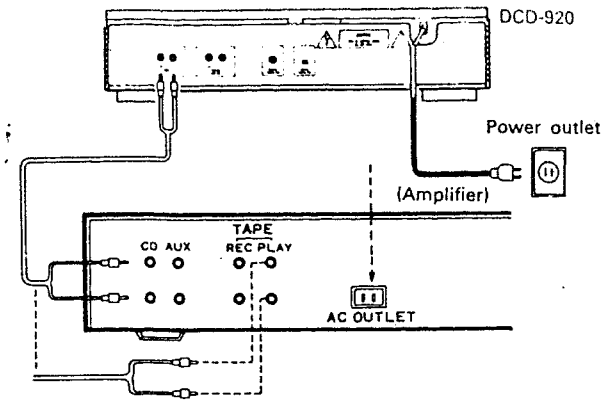
㉙ Digital Output Jack (OPTICAL)

- Outputs digital optically.

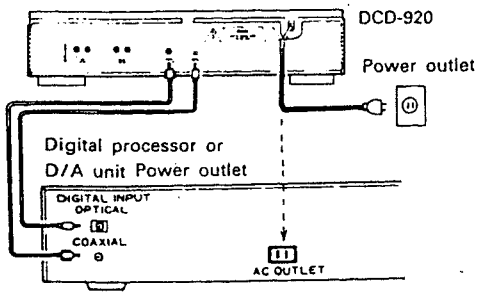
Continuous Operation
If the automatic search reverse button ⑲, the automatic search forward button ⑳, the CALL button ㉔, or the +10 button ⑯ are held in, the function of that button will be repeated.

CONNECTION

1) **Connecting the Output Terminal (FIX-VARIABLE)**
Use the included pin cords to connect the left (L) and right (R) output terminal (FIX-VARIABLE) of the DCD-920 to the CD, AUX, or TAPE PLAY left (L) and right (R) input jacks of the amplifier.
There are two types of output jacks, one of the variable type and one



(2) **Connecting the Digital Output Jack (COAXIAL/OPTICAL)**
Use a 75-ohm pin cord to connect the digital output jack (COAXIAL) of the DCD-920 to the digital input jack (COAXIAL) on a digital processor or D/A unit, available in stores.
In the same way, connect the digital output jack (OPTICAL) on the DCD-920 with the optical input on a digital processor or D/A unit using an optical fiber cable.



Connection Precautions
- Before proceeding with connections or disconnections of cables and power cords, be sure to turn all system components off.
- Ensure that all cables are connected properly to the L (left) and R (right) jacks.
- Insert plugs fully into the terminals.
- Connect the output jacks to the amplifier CD, AUX or TAPE PLAY input jacks.

OPENING AND CLOSING THE DISC HOLDER AND LOADING A DISC

Opening and closing the disc holder (This operation only works while the power is on.)
1. Press the power switch (POWER) to turn on the power.
2. Press the open/close button (⏏ OPEN/CLOSE).

How to load a disc
- Make sure the disc holder is completely open.
- Hold the disc by the edges and place it on the disc tray. (Do not touch the signal surface, i.e., the glossy side.)
- When using 12 cm. diameter discs, make sure the outer edge matches the tray guide circumference (Fig. 1), and when using CD singles (8 cm. diameter) match the outer edge with the inner tray guide circumference. (Fig. 2)
- Press the open/close button (⏏ OPEN/CLOSE) to close the disc holder.
- When the disc holder is closed, the disc is read and after a few seconds the number of tracks and total playing time are displayed on the TRACK NO. and TIME displays, respectively.
- When the disc holder is open and a disc is loaded, you may also press the play (▶ PLAY) or pause (⏸ PAUSE) button to close the disc holder. (If the play button (▶ PLAY) is pressed, playback will start immediately upon the disc contents having been read.)

Fig. 1

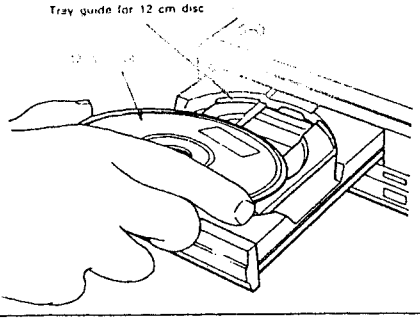
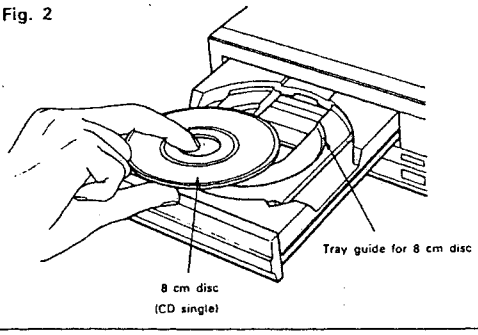


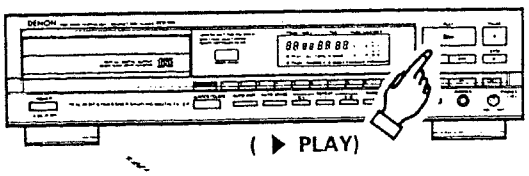
Fig. 2



Caution:
- If your finger should get caught in the disc holder when it closes, press the open/close button (⏏ OPEN/CLOSE).
- Do not place any foreign objects on the disc tray, and do not place more than one disc on the tray at a time. Otherwise malfunction may occur.
- Do not push in the disc tray manually when the power is off as this may cause malfunction and damage the CD player.

NORMAL CD PLAYBACK

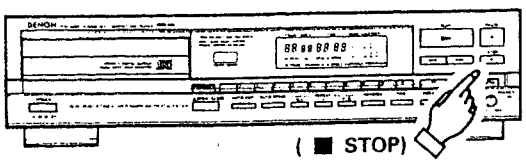
(1) Starting Playback



1 Press the power switch (POWER) to turn on the power.
2 Load the disc you want to play.
- When the disc holder is closed, the disc is read and the number of tracks and total playing time of the disc are displayed.

3 Press the play button (▶ PLAY).

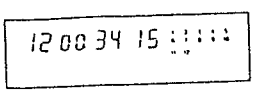
(2) Stopping Playback



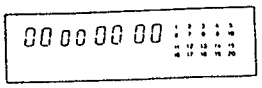
1 Press the stop button (■ STOP).
- When all tracks have been played on a disc, playback will stop by itself.

Precautions:

- If no disc has been loaded or the disc has been placed upside down, all indicators will light.
- When the information on the disc cannot be read correctly, for example due to dust or dirt on the disc, the indicators will read as shown below. Nothing will be shown on the TRACK NO. and TIME displays, and it may take quite a while to read the disc.
- If the PLAY, PAUSE or NUMBER buttons are pushed just after turning [illegible] might not be indicated in the window. This is normal. In this case, push the STOP button to light-up the display and then, push your necessary function button.



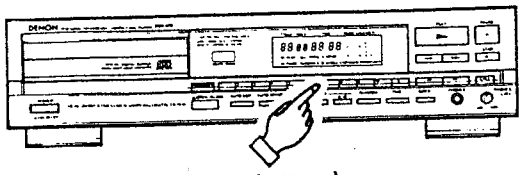
Normal display



Improper display

ADVANCED CD PLAYBACK

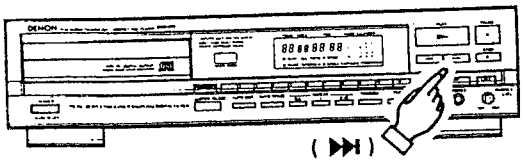
❶ Playing a Specific Track Direct Search ..... Number buttons



(Number buttons)

- Use the number buttons and the +10 button to input the number of the desired track.
  For example, to play track number 4, press [4], and to play track number 12, press [+10] and [2]. Playback will begin from that track.

❷ Advancing to the next track during playback ..... Automatic Search

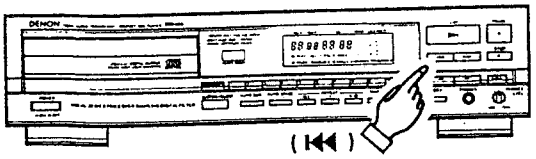


(▶▶|)

Press the Automatic search forward button (▶▶|) during playback.

- The pickup will advance to the beginning of the next track and playback will continue. Pressing the button several times will forward the pickup the corresponding number tracks.

❸ Returning to the beginning of the current track during playback ..... Automatic Search



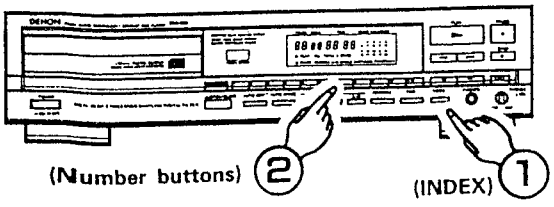
(|◀◀)

Press the Automatic search reverse button (|◀◀) during playback.

- The pickup will return to the beginning of the current track and playback will continue. Pressing the button several times will return the pickup the corresponding number tracks.

❹ Finding Sections Within a Track ..... Index Search

- With this function, you can find and play from the beginning of sections within the track marked by index numbers.



(Number buttons) (2) (1) (INDEX)

(1) "--" appears on the TRACK NO. display when the INDEX button is pressed.

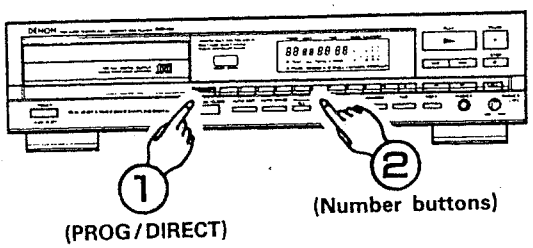
(2) Input the track number using the number buttons.
Next, "--" appears on the INDEX display. Input the desired index number, and playback will start from that index number.
For example, to start from index 2 on track number 3, press INDEX, 3, then 2.

- Indexes are numbers which are assigned to sections within a track. Check the disc's explanatory notes for the index numbers.
- If you input an index number not on the disc, playback will start from the last index number on the track.

❺ Playing Specific Tracks in a Specific Order ..... Programmed Play

- With this function, you can choose any of the tracks on the disc and program them to play in any order.
- Programming is possible with the disc holder open.
- Up to 20 tracks can be programmed.
- The programmed tracks are shown on the calendar.

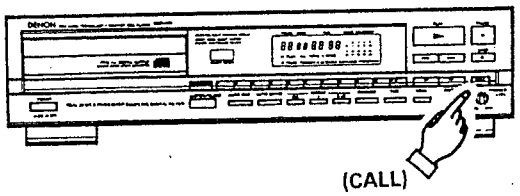
(1) Programming



(1) (PROG/DIRECT) (2) (Number buttons)

- Press the PROG/DIRECT button so that the [PROGRAM] indicator lights, then use the number buttons and the +10 button to program the tracks.
  For example, to program tracks 3, 12, and 7, press [PROG/DIRECT], [3], [+10], [2], and [7].
  The corresponding track number lights on the calendar each time a track is programmed, the track number is displayed on the TRACK NO. display, the number of tracks programmed is displayed on the INDEX display, and the total playing time of the programmed tracks is displayed on the TIME display. A few seconds after the last track has been programmed, the total number of tracks programmed is displayed on the TRACK NO. display and the total playing time of the programmed tracks is displayed on the TIME display.

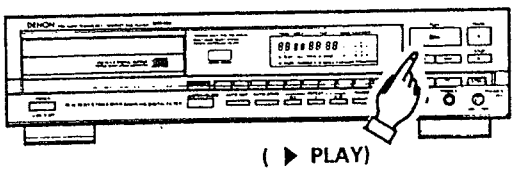
(2) Checking the Programmed Tracks



(CALL)

- Press the CALL button.
  The programmed tracks are displayed in order on the TRACK NO. display each time the CALL button is pressed.

(3) Playing the Programmed Tracks



(▶ PLAY)

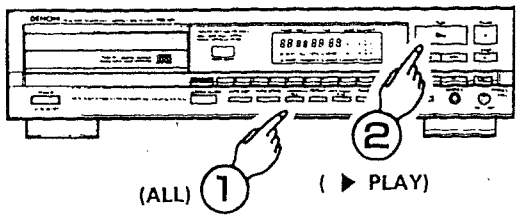
- Press the (▶ PLAY) button to play the tracks in the programmed order.

(4) Clearing the Program

- The entire program is cleared when the PROG/DIRECT button is pressed again. The program is also cleared when the (⏏ OPEN/CLOSE) button is pressed.
- If the PROG/DIRECT button is pressed during programmed play, the program is cleared and playback continues normally through to the last [illegible].

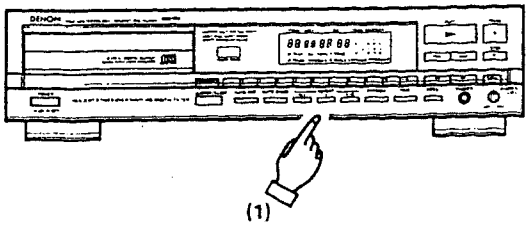
NOTES
- If programming is done in the play or pause mode, the track currently playing is programmed at the first position. Other tracks can be added to the program, but the number of programmed tracks and the playing time will not be displayed.
- Direct search is not possible during programmed play. If the number buttons are pressed, that track is added to the end of the program.
- Programming is possible with the disc holder open. Track numbers greater than the number of tracks recorded on the disc can be programmed, but will be automatically cleared before playback begins.
- The remaining time per track will only be displayed for track numbers 1 through 20.
- The total program time and remaining program time are not displayed if tracks greater than track number 20 are programmed.

⑥ Repeating playback of all tracks ..... Repeat All

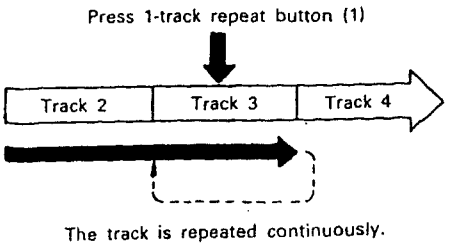


① Press the repeat all button (ALL).
② Press the play button (▶ PLAY).
- Pressing the repeat all tracks button (ALL), [ALL] is displayed.
- Steps ① and ② above may be reversed.
- To cancel repeat playback of all tracks, press the repeat all button (ALL) once more.
- Pressing the repeat all button (ALL) during programmed playback, playback of the tracks entered into the memory will be repeated.

⑦ Repeating a Single Track ..... 1-track Repeat



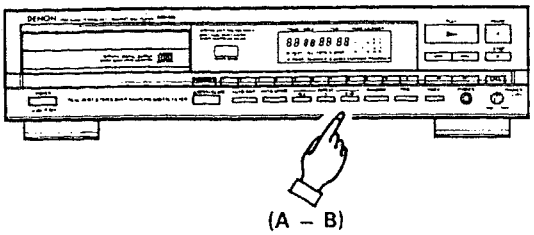
- Press this button if you want to hear a track repeatedly.



- When the 1-track repeat button (1) is pressed during playback, only the number of the track currently playing will remain lit on the calendar, as long as the track number is not over 20, and that track will be repeated.
- If the track number is 21 or over, the 1-track repeat function will work, but nothing will be lit on the calendar.
- When the 1-track repeat button (1) is pressed in the stop mode, track number 1 lights on the calendar and the 1 track repeat function is [illegible]. Normal playback will resume.

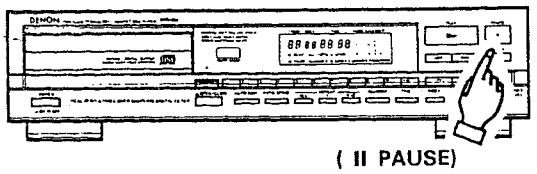
NOTE:
1-track repeat is possible during the all track repeat function (when the ALL indicator is on) by pressing the 1-track repeat button (1). When this is done, the ALL indicator will remain lit, and the all track repeat mode will resume when the 1-track repeat button (1) is pressed again.

⑧ Repeating playback of a desired interval ..... A-B Repeat



1. Start playback and press the A-B button when you reach the starting point of the interval. The [A-B] indicator starts blinking.
2. Continue playback or advance the pickup using the Automatic search forward button (▶▶|) or manual search forward button (▶▶) until the ending point is reached. Then press the A-B button once more. The [A-B] indicator will light.
- The pickup will now return to the starting point and repeat playback of the selected interval.
- This interval will be repeated until the A-B repeat mode is cancelled by pressing the A-B repeat button. The [A-B] indicator goes out.
- A-B repeat playback is not possible during programmed playback.

⑨ Pausing playback at any point ..... Pause

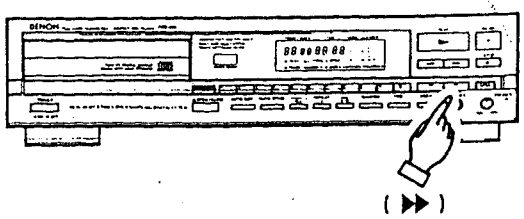


- Playback can be temporarily halted and then continued from the same point in the track.
1. Press the pause button (II PAUSE) during playback.
2. To continue playback, press the play button (▶ PLAY) or the pause button (II PAUSE) once more.

⑩ Audible quick search ..... Manual Search

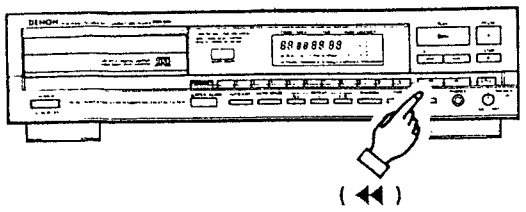
- Using this function, you can cue to a desired point within a track either in the forward or reverse direction.
- Release the manual search button (◀◀ or ▶▶) when the desired point has been reached. Normal playback then continues.

(1) Manual Search Forward



1. Press the manual search forward button (▶▶) during playback. Playback of the track is sped up.
- As a reference, the current track number and elapsed playback time within the track are displayed.
- Manual search forward is approximately three times faster when engaged during the pause state compared to playback. In this case, no sound is heard however.
- If the manual search forward button (▶▶) is kept pressed after the end of the last track on the disc is reached, (JJ) is displayed and manual search stops. To return to another point, press the manual search reverse button (◀◀) until (JJ) disappears.

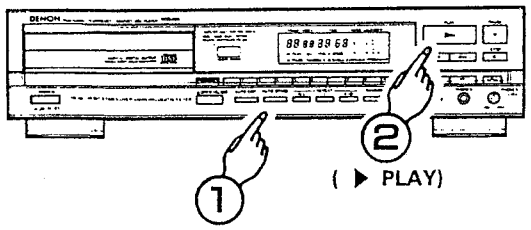
(2) Manual Search in Reverse



1. Press the manual search reverse button (◀◀) during playback. Reverse playback of the track is sped up.
- As a reference, the current track number and elapsed playback time within the track are displayed.
- Manual search in reverse is approximately three times faster when engaged during the pause state compared to playback. In this case, no sound is heard however.
- If the manual search reverse button (◀◀) is kept pressed after the beginning of the first track on the disc is reached, (CC) is displayed and manual search stops. To return to another point, press the manual search forward button (▶▶) until (CC) disappears.

⓫ Inserting blanks between tracks ..... Auto Space

- This is convenient feature that will insert 4-second blanks between tracks, which can be used when recording compact discs on tape.

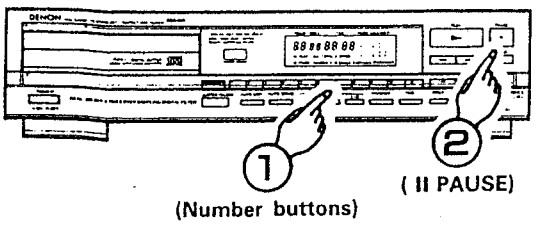


1. Pressing the auto space button (AUTO SPACE) will cause the A. SPACE indicator to light.
2. Press the play button (▶ PLAY) to start playback. When a track has been played to its end, a 4-second silence is made before the next track starts playing.
3. Press the auto space button (AUTO SPACE) again to cancel the function.

⓬ Searching and Pausing at the Beginning of the Track ..... Pause

(1) With Direct Search

- In this case, the set pauses at the beginning of the track found with the direct search operation.



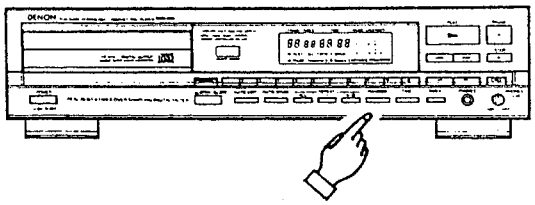
1 Press the number button(s) for the desired track.
2 Press the (II PAUSE) button.
- To start playback, press the (▶ PLAY) or (II PAUSE) button.

(2) With Program Search

- Press the (II PAUSE) button after the program search operation is completed. The set will pause at the beginning of the first programmed track.

⓭ Playing in Random Order ..... Random Play

- With this function, the tracks recorded on the disc can be played in a completely random order.



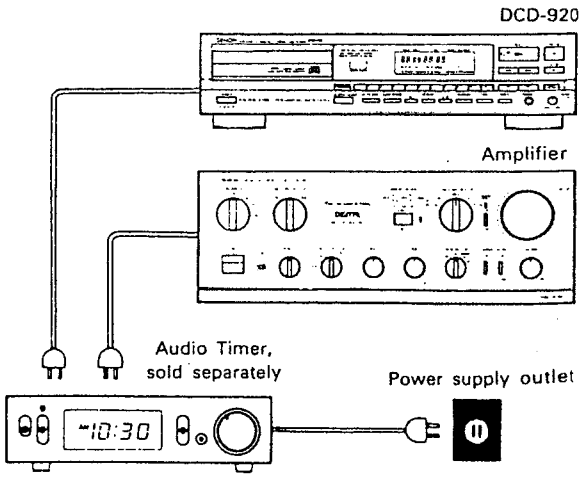
- When the RANDOM button is pressed, the RANDOM indicator lights and random play begins automatically.
- If the RANDOM button is pressed when tracks have been programmed, only the programmed tracks will be played, in random order.
- If the RANDOM button is pressed when the repeat function is set, the tracks will be played through once in random order, then played through again in a different order, etc.
- During random play, all of the tracks on the disc are displayed rapidly on the TRACK NO. display, and the track which will be played next cannot be known until playback starts.

NOTE:
- The remaining time in the total mode cannot be displayed during random play.
- If the RANDOM button is pressed when in the auto edit mode, the auto edit mode is cleared.

TIMER-CONTROLLED PLAYBACK

■ **Operation**
1. Turn on the power of all system components.
2. Set the input selector on the amplifier to correspond to the inputs the CD player is connected to.
3. Make sure a disc has been loaded in the disc holder.
4. Check the time on the timer and then set the desired turn-on time.
5. Turn the audio timer ON. Power is turned off automatically in all components connected to the timer.
6. When the preset turn-on time is reached, power is turned on in the system components, and CD playback starts from the first track.

■ **Connection**



THE COMPACT DISC

1. Precautions on handling compact discs

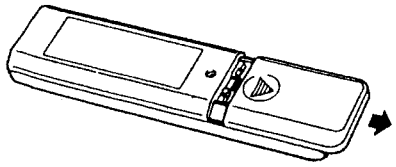
- Do not allow fingerprints, oil or dust on the surface of the compact disc. If the signal surface is dirty, wipe it off with a soft, dry cloth. Wipe in circular motions from the center and out.
  Use of DENON's AMC-20/21 CD cleaner is recommended.
- Always use care when handling discs to prevent damaging the surface, in particular when removing a disc from the case and returning it.
- Do not bend compact discs.
- Do not apply heat to compact discs.
- Do not enlarge the hole in the center of the disc.
- Do not write on the disc and do not attach any labels.
- Condensation will form on the disc surface if it is brought into a warm room from a cold area, such as outdoors during winter. Wait until the condensation disappears. Never dry discs with hair dryers, etc.
- Keep discs in the cases when they are not to be played. This will protect them from dust and dirt and prolong their service life.
- Do not store discs in the following places:
  1) Places exposed to direct sunlight for a considerable time.
  2) Places subject to accumulation of dust or high humidity.
  3) Places exposed to high temperatures, such as close to heater outlets.

PLAYBACK USING THE REMOTE CONTROL UNIT

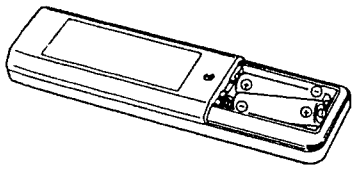
The accessory RC-220 remote control unit can be used to control the CD player from a convenient distance.

(1) Inserting the dry cell batteries

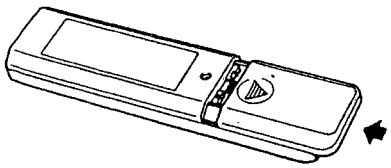
1. Remove the battery cover on the back of the remote control unit.



2. Insert two SUM-3 (standard size AA) dry cell batteries with correct polarity as indicated inside the battery compartment.



3. Replace the battery cover.

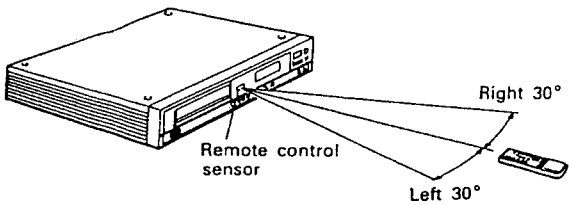


Notes on the Batteries

- The remote control unit uses standard size AA dry cell batteries.
- The batteries will need to be replaced approximately once a year. Replacement may be necessary earlier depending on how much the remote control unit is used.
- If, in less than a year from the time new batteries were inserted, the remote control fails to operate the CD player from a near-by position, it is time to replace the batteries.
- Insert the batteries properly, following the polarity diagram inside the battery compartment, in other words make sure (+) and (–) terminals are properly aligned.
- Batteries are prone to damage and leakage.
  Therefore:
  - Do not combine new batteries with used ones.
  - Do not combine different types of batteries.
  - Do not jumper opposite poles of the batteries, expose them to heat, break them open nor expose of them in open fire.
- If the remote control unit is not to be used for a long period of time, remove the batteries from the unit.
- If the batteries have leaked, remove any traces of battery fluid from the battery compartment, wiping thoroughly with a dry cloth. Then insert new batteries.

(2) Directions for Use

- Operate the remote control unit while pointing it towards the remote control sensor on the CD player (see below).



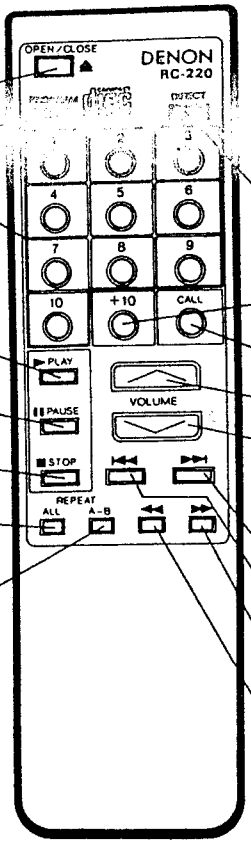
When a remote control signal is received, the remote control indicator on front of the CD player lights briefly.

- The remote control unit can be used at a distance up to 8 meters in a straight line from the CD player. This distance decreases if there are obstructions blocking the signal path or when the remote control unit is operated at an angle from the remote control sensor.
- The buttons on the remote control unit have identical functions with those on the CD player.
  However, the following functions cannot be remote controlled: Power ON/OFF.

Notes on Operation

- Do not press identical buttons on the CD player and remote control unit simultaneously as this may cause malfunction.
- The remote control unit may be difficult to operate if the remote control sensor is exposed to strong light, such as direct sunlight or light from fluorescent lamps, or if there are obstacles between the remote control unit and the sensor.
- **Direct track selection**
  Using the track number buttons (1 ~ 10, +10), tracks can be directly assigned for playback.
- **Track selection while programming**
  Press the program button (PROGRAM) and then the track numbers you wish to enter into the memory.
  Example: PROGRAM → 3 → +10 & 1 → 5 ....
  (Tracks 3, 11, 5 and so on are entered into the memory.)
  Memorized tracks are erased by pressing the direct button (DIRECT).
- **Correct use of the track number buttons**
  Direct selection of single-digit tracks is easy by just pressing the desired track number key. For tracks with numbers from 11 and on, first press the +10 button and then a single-digit button. E.g., to select track 21, press the +10 button twice and then press the 2 button.
- **Volume**
  The volume control on the unit will operate when the volume buttons are pressed. The volume can be checked by looking at the position of the control.

REMOTE CONTROL UNIT RC-220



Disc Holder Open/Close Button (⏏ OPEN/CLOSE)

Numerical Keypad (1 ~ 10)

Play Button (▶ PLAY)

Pause Button (⏸ PAUSE)

Stop Button (■ STOP)

Repeat All Tracks Button (ALL)

A-B Repeat Button (A–B)

Direct Button (DIRECT)

+10 Button

Call Button (CALL)

Volume Buttons (+)

Volume Buttons (–)

Automatic Search Forward Button (⏭)

Automatic Search Reverse Button (⏮)

Manual Search Forward Button (⏩)

Manual Search Reverse Button (⏪)

Setting to the Program Mode

- For program search, press the PROGRAM button then the number buttons (1 through 10 and +10).
- The remote control unit is normally set to the

The level of the Variable Output Terminal output can be varied. Pressing the (+) button increases the volume and pressing the (–) button decreases the volume.

Checking Programmed Contents

By pressing the CALL button on the remote control unit, programmed contents will be displayed. Tracks entered into the memory, will be displayed starting from the first track entered, and will advance one step at a time each time the CALL button is pressed.

Track Selection

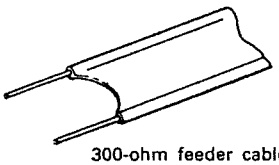
Use the numeric track buttons (1 ~ 10 and +10) while programming and to access a desired track almost instantly.

The track search buttons (⏮ and ⏭) are best used to advance or return from the current track to the next track.

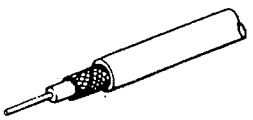
INSTALLATION PRECAUTIONS

The CD player uses a microcomputer for controlling internal electronic circuits. In the event that the player is used while a near-by tuner or TV is turned on, although unlikely, interference could occur either in the sound from the tuner or the picture of the TV. To avoid this, please take the following precautions.

- Keep the CD player as far away from the tuner or TV set as possible.
- Keep the power cable and connecting cable of the CD player separate from the antenna wires of the tuner and TV.
- Interference is particular likely to occur when an indoor antenna or a 300-ohm feeder cable is used. Thus, use of an outdoor antenna and 75-ohm coaxial cable is strongly recommended.



300-ohm feeder cable



75-ohm coaxial cable

TROUBLESHOOTING

If the CD player does not seem to be functioning properly, check the following:

Disc holder does not open or close.

- Is the power on?

When the play button (▶ PLAY) is pressed, playback does not start.

- Is the disc dirty or scratched? ..... See page 10

There is no sound, or it is distorted.

- Is the output cord properly connected to the amplifier? ..... See page 6
- Have the amplifier controls been set correctly?

A specific section of the disc will not play.

- Is the disc dirty or scratched? ..... See page 10

- Is the remote control unit being operated too far from the CD player? ..... See page 10
- Are there obstacles blocking the ray?
- Is the remote control sensor exposed to strong light?
- Are the batteries exhausted?

VAROITUS: SUOJAKOTELOA EI SAA AVATA. LAITE SISÄLTÄÄ LASER-DIODIN, JOKA LÄHETTÄÄ NÄKYMÄTÖNTÄ SILMÄLLE VAARALLISTA LASERSÄTEILYÄ.

ADVARSEL: USYNLIG LASERSTRALING VED ABNING NAR SIKKERHEDSAFBRYDERE EU UDE AF FUNKTION. UNDGA UDSAETTELSE FOR STRALING.

VARNING: OSYNLIG LASERSTRÄLNING VID AVLÄGSNANDE AV APPARATENS HÖLJE. UNDVIK EXPONERING AV LASERSTRÄLNING.

"CLASS 1 LASER PRODUCT"

SPECIFICATIONS

AUDIO

Dynamic Range:	97 dB
Signal-to-Noise Ratio:	106 dB
Harmonic Distortion:	0.0035% (1 kHz)
Separation:	102 dB (1 kHz)
Wow & Flutter:	Below measurable limit: (±0.001% W. peak)
Output Voltage:	2.0V, VARIABLE 0 ~ 2.0 V

DISCS

Compact Disc format

GENERAL CHARACTERISTICS

Power Supply:	50/60 Hz, Voltage is shown on rating label.
Power Consumption:	12 W
Dimensions:	434 (17.1 in.) W × 103 (4.0 in.) H × 315 (12.4 in.) D mm
Weight:	5 kg

FUNCTIONS AND DISPLAY

Functions:	Direct selection, automatic search, programmed playback, repeat playback, manual search, auto space, time mode, auto edit, emphasis feature
Display:	Track number, time, music calendar, and engaged modes
Others:	Headphones jack

REMOTE CONTROL UNIT

RC-220

Remote Control System:	Infrared pulse system
Power Supply:	3 V DC; two SUM-3 (standard size AA) dry cell batteries
External Dimensions:	48 (1.9 in.) W × 177 (7.0 in.) H × 18 (0.7 in.) D mm
Weight:	100 g (including batteries)

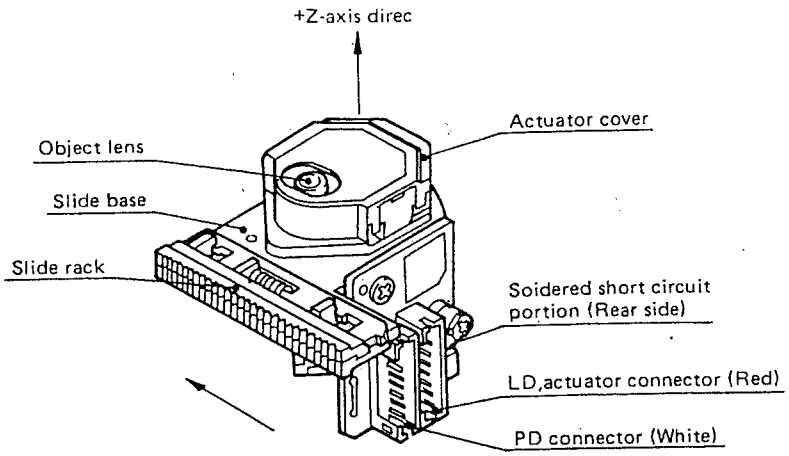
SUPPLIED ACCESSORIES

Pin-plug connection cord

* Design and specifications are subject to change without notice in the course of product improvement.

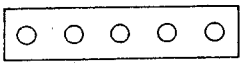
NOTE FOR HANDLING OF LASTER PICK-UP

DESCRIPTION OF THE COMPONENTS



Label

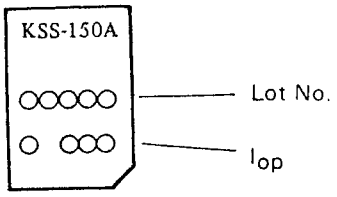
1. Serial number



This denotes the serial number used for quality control in the manufacturing plant.

Note: The numbers of figures in English numerals may be changed.

2. Label

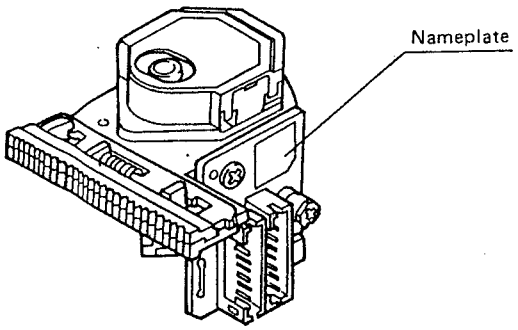


year
(last figure)
day month | quality control No.
OO O O O

but Oct. Nov. and Dec. are expressed by alphabetical letters of X, Y and Z.

10^{2} 1 10^{-1}
quality control — O O O O
LD drive current

3. Position of the labels

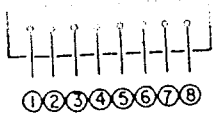


Note:
- The expressed unit is by mA, with omission of the decimal point as for example, 56.5 mA will be expressed as 565, but the head of English letter means the control in the manufacturing plant.
- If a voltage value in between No. 2 and No. 6 pins of TP102 of the servo and signal processor unit, the value of laser diode current "iop" can be found by a formula

$$\text{"iop 1"} = \frac{V1}{22}.$$

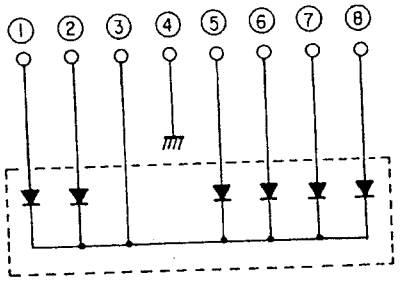
ELECTRICAL PIN CONNECTION

1. PD connector (JAPAN SOLDERLESS TERMINAL MFG. CO. LTD. "PH series" 8 pin)

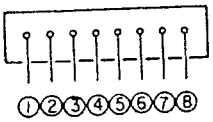


Pin No.	PD element
①	F
②	E
③	K
④	GND
⑤	A
⑥	B
⑦	C
⑧	D

PC Circuit Diagram

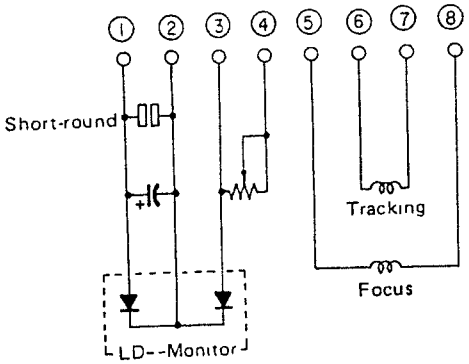


2. Actuator & LD connector (JAPAN SOLDERLESS TERMINAL, MFG. CO. LTD. "PH series" 8 pin)



COLOR : RED

LD • Actuator Circuit Diagram



Pin No.	description
①	Laser
②	GND
③	monitor
④	reference
⑤	Fo (–)
⑥	Tr (+)
⑦	Tr (–)
⑧	Fo (+)

Caution for Handling the Laser Pick-up

The laser pick-up KSS-150A is assembled and precisely adjusted using a sophisticated manufacturing process in our plant. Do not disassemble or attempt to readjust it. Please keep the following instructions carefully in handling pick-up.

1. Handle with care

(1) Storage
Do not store the pick-up in dusty, high-temperatured or high-humidity environments.

(2) Please take care for preventing from shock by falling down or careless handling.

2. Laser Diode (LD)

(1) Protect your eyes
The laser beam may damage the human eye, since the intensity of the focused spot may reach 7×10^3 W/cm^2 even if the intensity at the objective lens is 400 μW maximum. As the light beam spreads after focused through the objective lens, it does not effect you in the place as far as more than 30 cms. However, do not look at the laser light beam either through the objective lens directly nor another lens or a mirror.

(2) Poison of As
Since the LD chip contains As (Arsenic), as GaAs + GaAlAs, as known as the poison, although the poison is relatively weak, in comparing with others, e.g.As_2O_3, $AsCl_3$ etc., and the amount is small, avoid putting the chip in acid or an alkali solution, heating it over 200°C or putting it into your mouth.

(3) Avoid surge current or electrostatic discharge
The LD may be damaged or deteriorated by its own strong light if a large current is supplied to it, even if only a short pulse.
Make sure that there is no surge current in the LD driving circuit by switches or else. Be careful to handle pick-up as it may be damaged in a moment by human electrostatic discharge. The pins of the LD are short-circuited by solder for protection during shipment.
For safety handling of an LD, grounding the human body, measuring equipments and jig is strongly recommended. And still it is further desirable to make use of mat on the platform and floor for handling the LD.
To open the short circuit, remove the soldering quickly with a soldering iron whose metal part is grounded.
The temperature of the soldering iron should be less than 320°C (30W).

3. Actuator

(1) The performance of the actuator may be effected if magnetic material is located nearby, since the actuator has a strong magnetic circuit. Do not permit dust to enter through the clearance of the cover.

(2) Cleaning the lens
It may change the specifications by attaching dust or ash on the object lens. Clean the lens with a cleaning paper dampened with a little water, not pressing lens with so much strength by the cleaning paper.

4. Metal Bearing

As the metal bearing of Cu-compound sintered alloy is impregnated with FROIL946P (*Part No. 529 0054 007), never fail to supply the bushing with the same lubricant at the time of replacing the pick-up.

5. Handle with care

Please handle the laser pick-up with holding the side base (resin molded part).
When either a part of human body or some other things may happen to touch directly with the circuit part of P.W.Board, it may cause deterioration, take careful attention in handling this base.

6. Deterioration

When difficulty occurs either in focus or tracking adjustment nor able to adjust the focus or tracking, it seems that the laser pick-up is deteriorated. In these cases, check a value of laser diode current and give a decision for deterioration.

7. Fundamental Deterioration Decision of Laser Pick-up

(1) If a voltage value in between No. 2 and No. 6 pins of TP102 of the servo and signal processor unit, the value of laser diode current "iop" can be found by a formula
"iop 1" = $\frac{V1}{22}$.

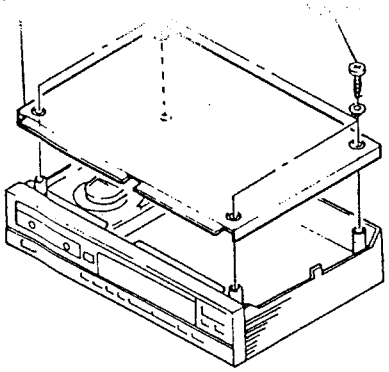
(2) If an "iop" exceeds ± 10% compared with the IOP indication on the laser pick-up nameplate, there is a fair chance for deterioration when it is checked under a circumambient temperature 23°C.

(3) When the circumambient temperature changes ± 10°C, "iop 1" will change ± 5%. The "iop 1"will also be changed by the passage of time.

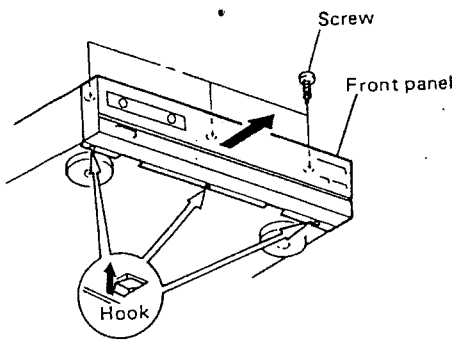
(4) In case of the above conditions taking into consideration and performed the adjustment in proper way, if the HF level at pin No. ① of TP102 on Main unit, and in between GND 4 becomes 1V or lesser values; or a jitter occurs great, the laser pick-up may be deteriorated.

DISASSEMBLY

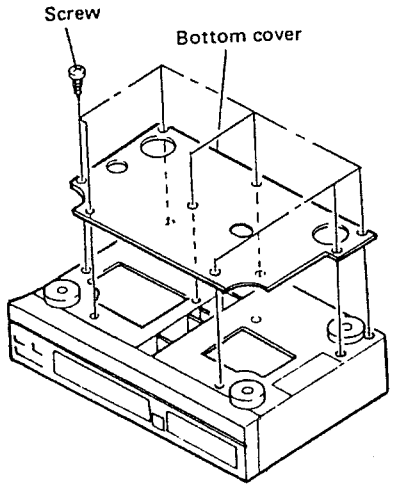
- **Top Cover**
  Remove 4 upper screws.



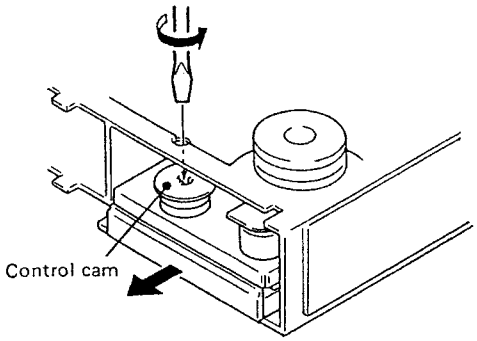
- **Front Panel**
  (1) Remove 3 front panel upper screws.
  (2) Undo 3 front panel upper hooks.
  (3) Pull front panel and undo 3 lower hooks.



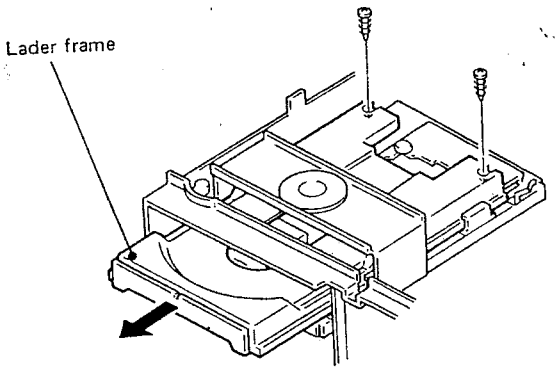
- **Bottom Cover**
  Remove 8 lower screw.



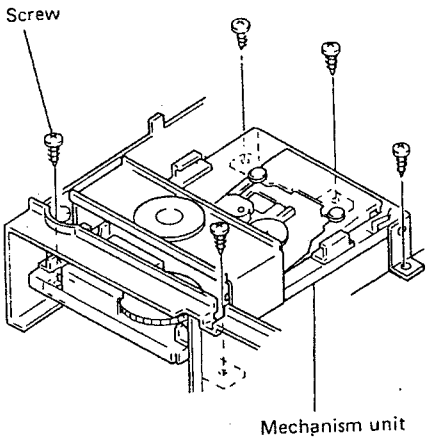
- **Loader**
  (1) Turn control cam counterclockwise with a (–)screw driver.



(2) Undo 2 upper screws, then pull the loader frame to the arrow direction.



- **Clamper Arm**
  Remove 5 upper screws



ADJUSTMENT

Microcomputer built in the unit, comprises service program to facilitate servo adjustment by pushing operation button.

(1) Turn power switch OFF.

(2) Shortcircuit pins ③ , ④ of connector (TP102) on P.W.B. (Main Unit)
(Caution) Do not touch other pins.

(3) Turn power switch ON.
(Service program starts, and displays track number 01)

(Caution)

- When service program started normal operation of buttons will be defeated.

2. Service program function

Button	Function	Description
▲ OPEN/CLOSE	Opens or closes the disc holder.	● Opens or closes only when disc is stopped. ● Operate other keys after open or close.
■ STOP	Stops system function.	● Displays track number 01. ● Push when adjustment completed, or do it again.
▶ PLAY	Starts focus servo and disc turns.	● Push when adjust tracking offset. ● When completed, displays track number 02.
❚❚ PAUSE	Starts focus servo, tracking servo, slide servo, spindle servo.	● When PLAY button is pushed, starts tracking servo and slide servo. ● When completed, track number 03.
Other button	No normal operation.	● Do not operate buttons other than above. ● If misoperated, immediately turn power switch OFF.

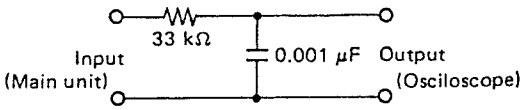
(Caution)

- Do not use remote control during service program mode.

3. Adjustment

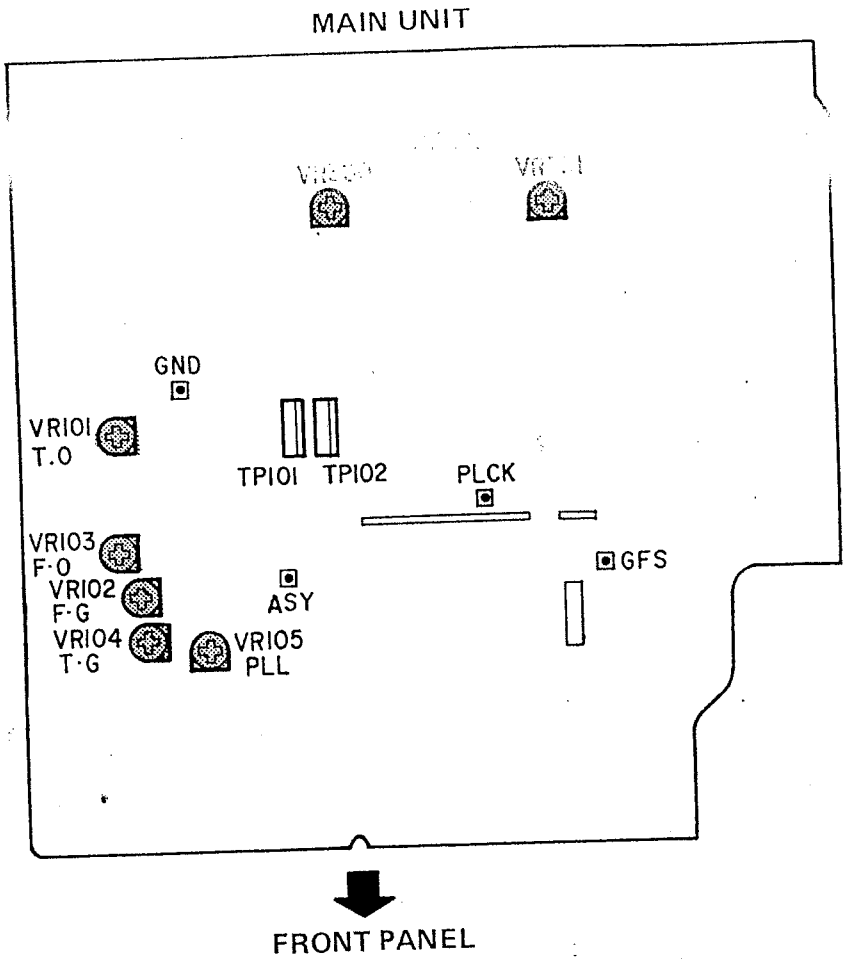
(1) Necessary equipment for adjustment

1. Dual trace oscilloscope
2. Reference disc (CA-1094) 富田靖子
3. Oscillator (10 Hz ~ 10 kHz, 0 ~ 3 Vp-p)
4. Frequency counter (readable more than 5 MHz)
5. Filter for measurement



(Filter for measurement)

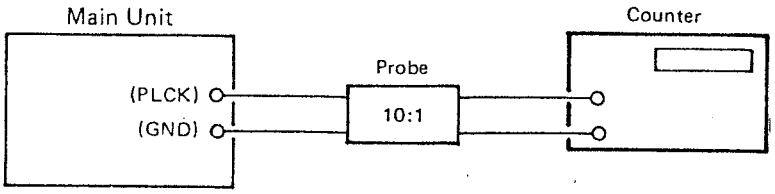
2) Location



(3) Preset

1.	Start service program.	
2.	Preset VR101 ~ 105 as per right figure.	VR101 (T-OFFSET) 3 O'clock VR103 (F-OFFSET) 3 O'clock VR102 (F-GAIN) 3 O'clock VR104 (T-GAIN) 3 O'clock VR105 (PLL) 6 O'clock
3.	Step.	1. PLL (VR105) 2. Tracking offset (VR101) 3. Focus gain (VR102) 4. Focus offset (VR103) 5. Tracking gain (VR104) 6. Tracking offset recheck. (VR101)

4. PLL Adjust

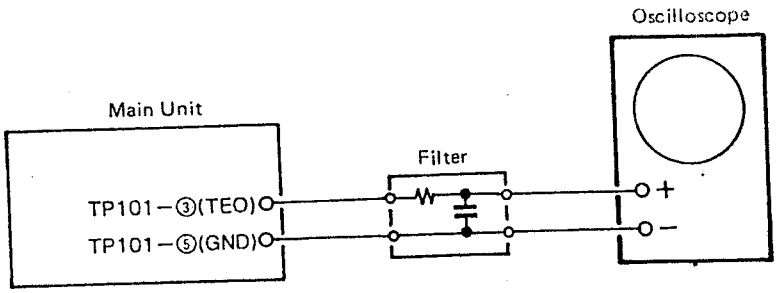
Connection


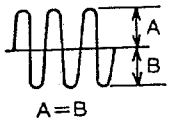
- Ground Test point [ASY] to GND.

Adjust	Check	Step
(Volume)	(Counter)	• Turn PLL volume VR105 so that frequency counter reads 4.32 MHz.
VR105	4.32 MHz ± 10 kHz	

5. Tracking offset

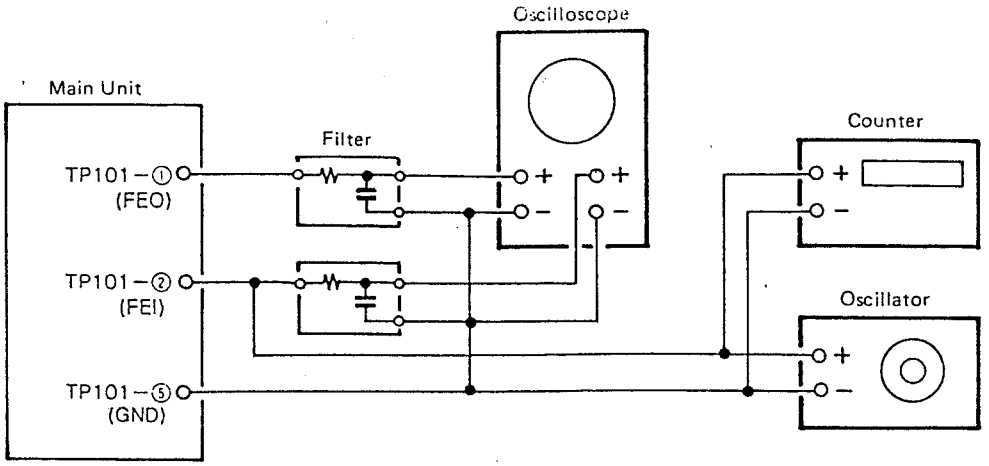
Connection



Oscilloscope (DC range)		Adjust	Check	Step
V	H	(Volume)	(Oscilloscope)	1. Push ▲ OPEN/CLOSE and load disc holder reference disk. 2. Push ▲ OPEN/CLOSE and close disc holder. 3. Push ▶ PLAY to turn disc. (Displays track number 02) 4. Short (+) (–) of oscilloscope and check the base line. 5. Adjust VR101 [T-OFFSET] to equalize upper and lower amplitude of the waveform.
0.1V/div	1–2 ms/div	VR101	 A=B	

6. Focus gain

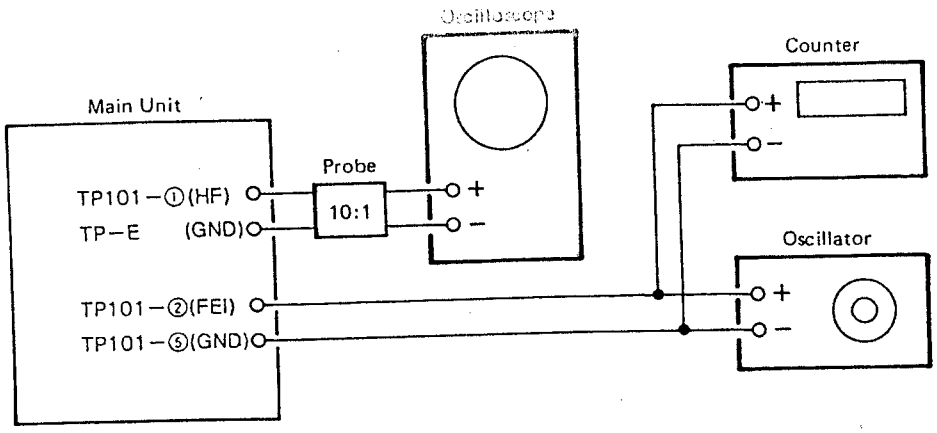
Connection

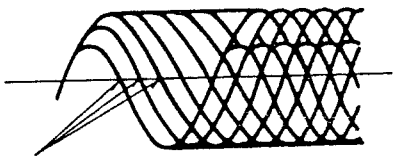
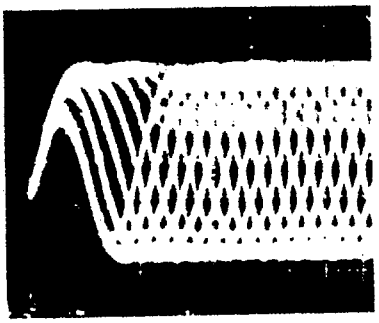


Oscillator	Counter	Oscilloscope		Adjust	Check	Step
		V	H	(Volume)	(Oscilloscope)	1. Push [II PAUSE] .(Displays track number 03)
750 Hz 1 Vp-p (±0.1 V)	750 Hz	• DC range • X-Y mode		VR102	Y axis X axis Phase 90° Waveform not right X axis Y axis	2. Set oscillator to 750 Hz/1 Vp-p. 3. Switch oscilloscope input to X-Y mode. 4. Adjust VR102 [F-GAIN] to symmetrize Lissajous figures to X and Y axes.

7. Focus offset

Connection



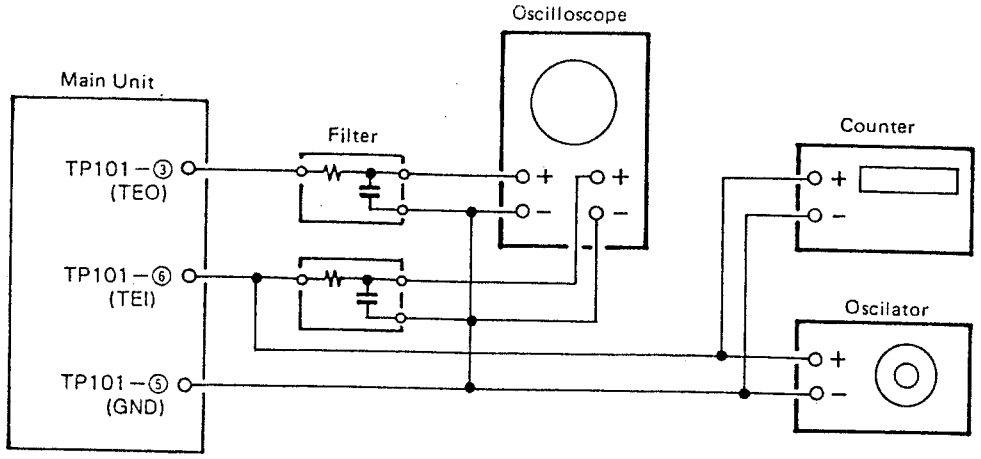
Oscillator	Counter	Oscilloscope		Adjust	Check
		V	H	(Volume)	(Oscilloscope)
750 Hz 1 Vp-p (±0.1 V)	750 Hz	50 mV/div or 20 mV/div	0.2 µs/div or 0.5 µs/div	VR103	 Adjust to minimize pattern jitter.  Pattern
		● Set input mode to ALTERNATE or CHOPPER.			

Step

1. Push [II PAUSE].
2. Set oscillator to 750 Hz, 1 Vp-p (±0.1 V).
3. VR103 [F-OFFSET] to minimize pattern jitter.

8. Tracking gain

Connection



• Caution: Connect oscillator after [II PAUSE] pushed and servo function started.

Oscillator	Counter	Oscilloscope V	Oscilloscope H	Adjust	Check	Step
				(Volume)	(Oscilloscope)	1. Push [II PAUSE]. (Displays track number 03)
● 2.4 kHz (±120 Hz) ● 3 Vp-p (±0.1V)	2.4 kHz (±120 Hz)	● DC range ● X-Y mode		VR104	Y axis / X axis / Phase 90° Waveform not right / X axis / Y axis	2. Connect oscillator. 3. Set oscillator to 2.4 kHz/3 Vp-p. 4. Switch oscilloscope input to X-Y mode. 5. Adjust VR104 [T-GAIN] to symmetrize Lissajous figures to X-Y axes.

9. Tracking offset adjustment check

(1) Adjust tracking offset again.

(2) Push [■ STOP] and stop disc.

(3) Push [▶ PLAY] and check disc turns.

Note: If disc does not turn, push [▶ PLAY] again and check track number 02 is displayed.

(4) Check oscilloscope waveform upper and lower amplitude are same to base line.

(5) Push [■ STOP] and stop disc.

(6) Push [▲ OPEN/CLOSE] and remove the reference disc.

EAT RUN MODE FUNCTION

Run Mode

ht to show that the unit is shifted in Heat Run mode.
e sure to load the disc previously.
ess the disc holder open/close button (▲ OPEN/CLOSE) to cancel Heat Run mode.

This mode functions only for a disc with 21 pieces of music or more. For a disc with 20 pieces of music or lesser, please do not use.

peration

uring the Heat Run mode to shift the unit in Play mode makes the unit replays from the first music after opens the loader once and e-closes it when finish playing the last track (comes into lead out).
lereafter, operates open/close of loader, servo on, reading of TOC, and playing repeatedly, and repeats playing the two tracks; the rst and the last ones.

rror Message

Vhen the system error occurs while in Heat Run mode, the following error message will display on the Track No. indicator and stops peration.

1. E1
   At the time of Focus Servo does not activate.
2. E2
   When unable to detect synchronous pattern however the disc is in rotating. (GFS does not drive.)
3. E3
   No synchronous pattern can be detected while in Play mode. (No GFS drives.)
4. E4
   When TOC is unreadable in despite of servo is activated.
5. E5
   In case of loader malfunctions. (Unable to turn on the switch.)
6. E6
   The inner circle switch of Pick-up does not turn off.
7. E7
   The inner circle switch of Pick-up does not turn on.

★ The number of operation up to the stop will be displayed on the minute and second portion of the indicator.

CXA1182AS Terminal Function

Terminal No.	Terminal Symbol	Terminal Function
4	TZC	Tracking zero cross comparator input terminal.
5	ATSC	Input terminal of ATSC detecting window comparator.
6	FE	Focus error signal input terminal.
8	FGD	In case of reducing higher range gain of focus servo, connect a capacitor between this terminal and terminal number (9).
9	FS3	Shifts higher range gain of focus servo by FS3 ON/OFF.
10	FLB	Terminal for external time constant to increase lower range of focus servo.
11	FEO	Focus drive output.
12	FE(–)	Reverse input terminal for focus amplifier.
13	SRCH	Terminal for external time constant to make focus search waveform.
14	TGU	Terminal for external time constant to shift higher range gain of tracking.
15	TG2	Terminal for external time constant to shift higher range gain of tracking.
17	TAO	Tracking drive output.
18	TA(–)	Reverse input terminal for tracking amplifier.
19	SL(+)	Non-reverse input terminal of sled amplifier.
20	SLO	Sled drive output.
21	SL(–)	Reverse input terminal of sled amplifier.
22	SSTOP	Terminal for limit switch ON/OFF to detect disc inner most circle.
23	FSET	Terminal to compensate peak in focus tracking phase, and for setting F_O in CLV LPF.
24	SENS	Terminal to output FZC, AS, TZC, SSTOP, $\overline{BUSY}$ by command from CPU.
26	C. OUT	Terminal to output signal for track number count.
27	DIRC	Terminal is used at the time of 1 track jump. A 47 kΩ pull up resistor is included.
28	XRST	Reset input terminal. Resets at "L".
29	DATA	Serial data input from CPU.
30	XLT	Latch input from CPU.
31	CLK	Serial data transfer clock input from CPU.
33	BW	Terminal for external time constant of loop filter.
34	PDI	Input terminal of PDO for CXD1125 phase comparator.
35	ISET	Delivers a current to set the height of focus search, track jump, and sled kick.
36	VCOF	Resistance value between this terminal and terminal (37) is nearly proportion to VCO free-run frequency.
38	C864	Output terminal of 8.64 MHz VCO.
39	LOCK	Reckless drive protection circuit activates at "L". A 47 kΩ pull up resistor is included.
40	MDP	Terminal to connect MDP terminal of CXD1125.
41	MON	Terminal to connect MON terminal of CXD1125.
42	FSW	Terminal for external LPF time constant of CLV servo error signal.
44	SPDL(–)	Reverse input terminal for spindle drive amplifier.
45	SPDLO	Spindle drive output.
46	WDCK	Clock input for auto-sequence. Normally applied 88.2 kHz.
47	FOK	FOK signal input terminal.
48	MIRR	MIRR signal input terminal.

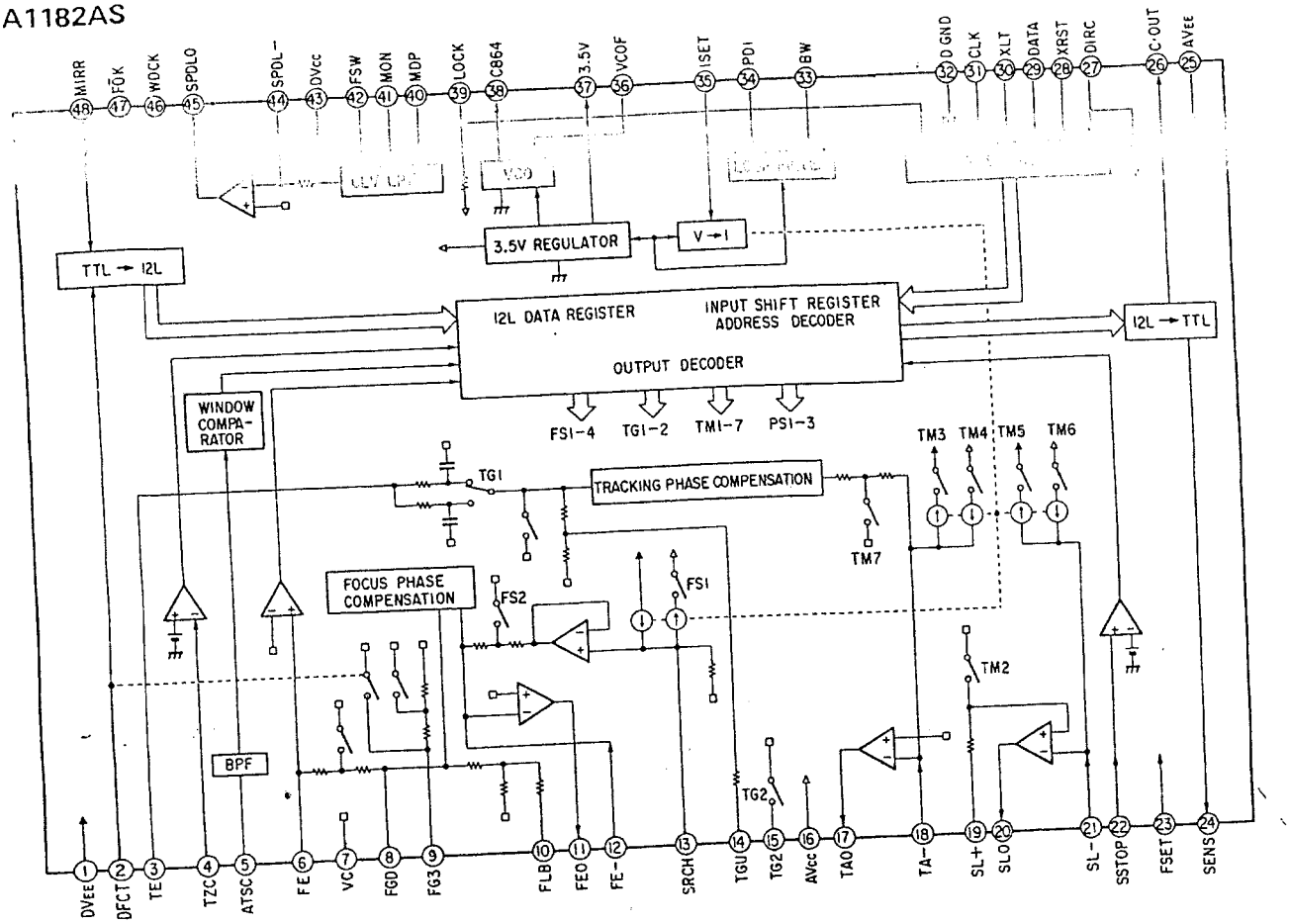
NOTE FOR PARTS LIST

- Part indicated with the mark " ⊙ " are not always in stock and possibly to take a long period of time for supplying, or in some case supplying of part may be refused.
- Ordering part without stating its part number cannot be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.
- Not including Carbon Film ±5%, 1/4W Type in the P.W.Board parts list. (Refer to the Schematic Diagram for those parts.)

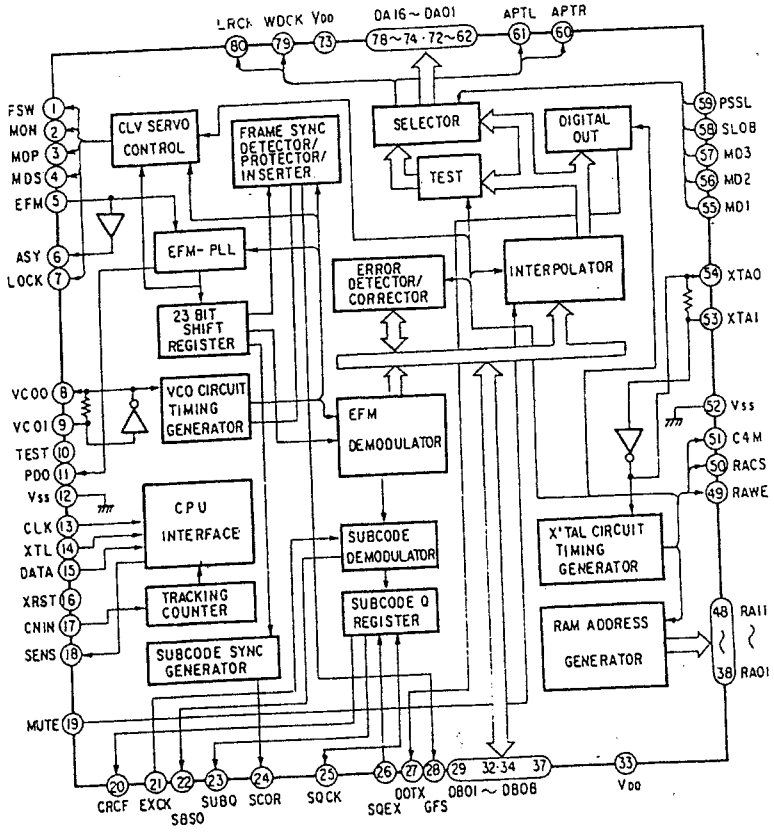
CXD1125Q Terminal Function

Terminal No.	Terminal Symbol	I/O	Terminal Function
1	FSW	O	Output to shift sled motor control signal. Used for spindle servo.
3	MDP	O	Drive output for spindle motor. Rough control at CLV-S mode and phase control at CLV-P mode.
4	MDS	O	Drive output for spindle motor. Speed control at CLV-P mode.
5	EFM	I	Input of EFM signal from RF amplifier.
6	ASY	O	Output to control slice level of EFM signal.
7	LOCK	O	Sampling GFS signal by WFCK/16 and if it is "H", delivers "H"; if it is continuously "L" 8 times, delivers "L".
8	VCOO	O	VCO output. When EFM signal is locked, f=8.6436 MHz.
9	VCOI	I	VCO input.
10	TEST	I	(0V).
11	PDO	O	Phase comparing output for EFM signal and VCO/2.
12	Vss	–	GND (0V).
13	CLK	I	Serial data transfer clock input from CPU. Latches data by rising edge of clock.
14	XLT	I	Input of Latch from CPU. Latches 8-bit shift register data (serial data from CPU) to each register.
15	DATA	I	Input of serial data from CPU.
16	XRST	I	System reset input. Resets at "L".
17	CNIN	I	Input of tracking pulse.
18	SENS	O	Answer to address, output internal condition.
19	MUTG	I	Input of muting. When internal register A's ATTM is in "L", and MUTG is in "L" for normal condition; "H" for no sound condition.
20	CRCF	O	Output of CRC check result of sub-code Q.
21	EXCK	I	Clock input for serial output of sub-code.
22	SBSO	O	Serial output of sub-code.
23	SUBQ	O	Q output of sub-code.
24	SCOR	O	Output of sub-code sync. S0 + S1.
25	SQCK	I/O	Reading clock of sub-code Q.
26	SQEX	I	Selection input of SQCK.
27	DOTX	O	Digital out output. (When CXD1130Q or DO is OFF, output $\overline{WFCK}$.)
28	GFS	O	Output of indication for frame sync lock condition.
29	DB08	I/O	Data terminal of external RAM. DATA8 (MSB).
30	DB07	I/O	Data terminal of external RAM. DATA7.
31	DB06	I/O	Data terminal of external RAM. DATA6.
32	DB05	I/O	Data terminal of external RAM. DATA5.
33	V_{DD}	–	Power supply (+5V).
34	DB04	I/O	Data terminal of external RAM. DATA4.
35	DB03	I/O	Data terminal of external RAM. DATA3.
36	DB02	I/O	Data terminal of external RAM. DATA2.
37	DB01	I/O	Data terminal of external RAM. DATA1 (LSB).
38	RA01	O	Address output of external RAM. ADDR01 (LSB).
39	RA02	O	Address output of external RAM. ADDR02.
40	RA03	O	Address output of external RAM. ADDR03.
41	RA04	O	Address output of external RAM. ADDR04.
42	RA05	O	Address output of external RAM. ADDR05.
43	RA06	O	Address output of external RAM. ADDR06.
44	RA07	O	Address output of external RAM. ADDR07.
45	RA08	O	Address output of external RAM. ADDR08.

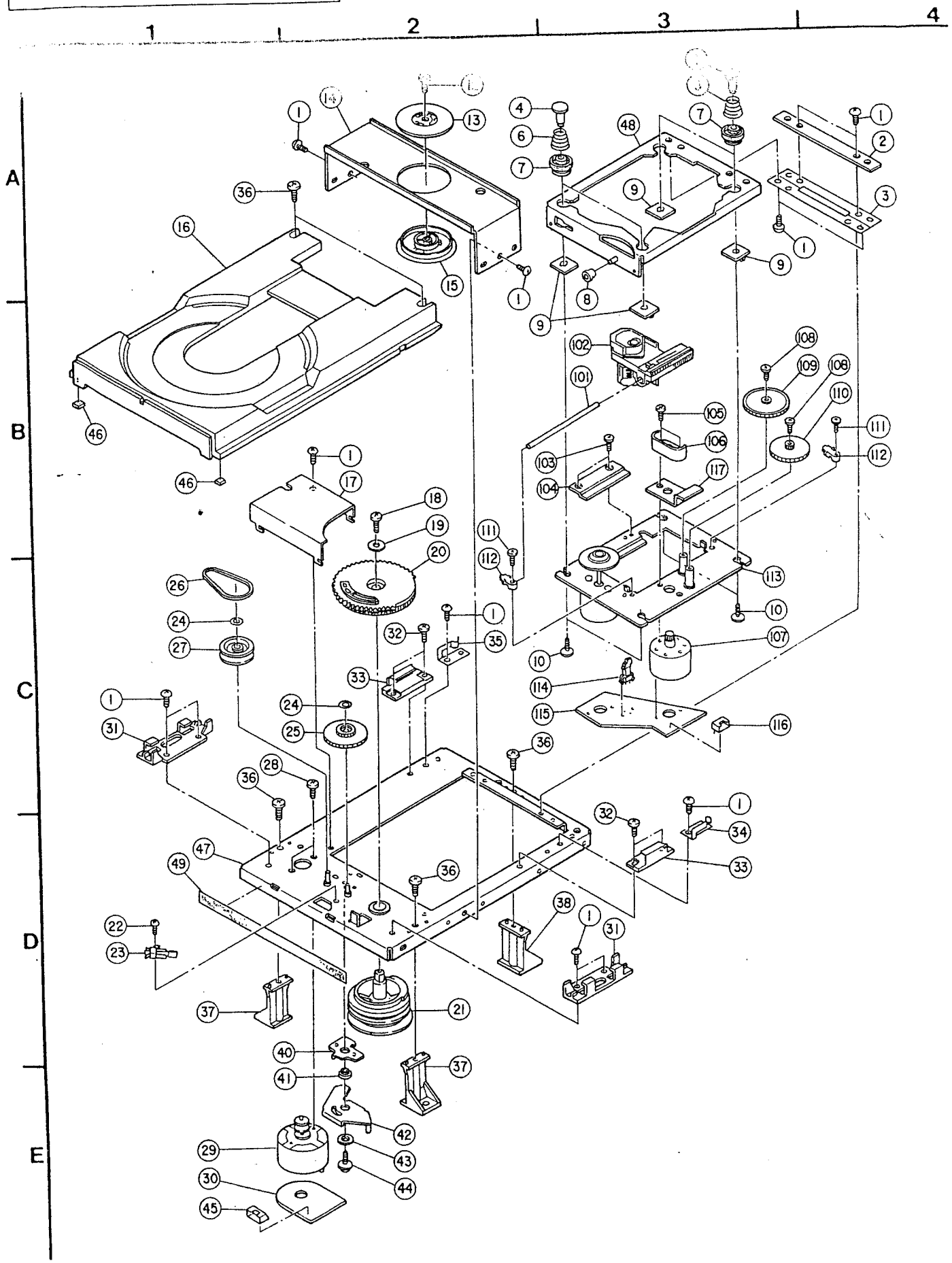
CXA1182AS



CXD1125Q



EXPLODED VIEW OF MECHA UNIT



Terminal No.	Terminal Symbol	I/O	Terminal Function
46	RA09	O	Address output of external RAM. ADDR09.
47	RA10	O	Address output of external RAM. ADDR10.
48	RA11	O	Address output of external RAM. ADDR11.
49	RAWE	O	Write enable signal output for external RAM. (Active at "L".)
50	RACS	O	Chip select signal output for external RAM. (Active at "L".)
51	C4M	O	Dividing output of X'tal. f = 4.2336 MHz.
52	V_{SS}	–	GND (0V).
53	XTAI	I	X'tal oscillation circuit input. By selecting of mode, f = 8.4672 MHz or 16.9344 MHz.
54	XTAO	O	X'tal oscillation circuit output. By selecting of mode, f = 8.4672 MHz or 16.9344 MHz.
55	MD1	I	Mode selection input 1.
56	MD2	I	Mode selection input 2.
57	MD3	I	Mode selection input 3.
58	SLOB	I	Code switching input for audio data output. At "L" for 2's compliment output; at "H" for offset binary output.
59	PSSL	I	Mode switching input for audio data output. At "L" for serial output; at "H" for parallel output.
60	APTR	O	Control output for aperture compensation. In "H" for R-ch.
61	APTL	O	Control output for aperture compensation. In "H" for L-ch.
62	DA01	O	At PSSL = "H" for DA01 (LSB of parallel voice data) output. At PSSL = "L" for C1F1 output.
63	DA02	O	At PSSL = "H" for DA02 output; PSSL = "L" for C1F2 output.
64	DA03	O	At PSSL = "H" for DA03 output; PSSL = "L" for C2F1 output.
65	DA04	O	At PSSL = "H" for DA04 output; PSSL = "L" for C2F2 output.
66	DA05	O	At PSSL = "H" for DA05 output; PSSL = "L" for C2FL output.
67	DA06	O	At PSSL = "H" for DA06 output; PSSL = "L" for C2PO output.
68	DA07	O	At PSSL = "H" for DA07 output; PSSL = "L" for RFCK output.
69	DA08	O	At PSSL = "H" for DA08 output; PSSL = "L" for WFCK output.
70	DA09	O	At PSSL = "H" for DA09 output; PSSL = "L" for PLCK output.
71	DA10	O	At PSSL = "H" for DA10 output; PSSL = "L" for UGFS output.
72	DA11	O	At PSSL = "H" for DA11 output; PSSL = "L" for GTOP output.
73	V_{DD}	–	Power supply (+5V).
74	DA12	O	At PSSL = "H" for DA12 output; PSSL = "L" for RAOV output.
75	DA13	O	At PSSL = "H" for DA13 output; PSSL = "L" for C4LR output.
76	DA14	O	At PSSL = "H" for DA14 output; PSSL = "L" for $\overline{C21O}$ output.
77	DA15	O	At PSSL = "H" for DA15 output; PSSL = "L" for C21O output.
78	DA16	O	At PSSL = "H" for DA16 (MSB of parallel voice data) output. At PSSL = "L" for DATA output.
79	WDCK	O	Strobe signal output. At DF ON, 176.4 kHz. At CXD1125Q or DF OFF, 88.2 kHz.
80	LRCK	O	Strobe signal output. At DF ON, 88.2 kHz. At CXD1125Q or DF OFF, 44.1 kHz.

Note:

C1F1: ┐ Monitor output for error correction state what C1 is at
C1F2: ┘ decode.

C2F1: ┐ Monitor output for error correction state what C2 is at
C2F2: ┘ decode.

C2FL: Correction state output. Becomes "H" when C2 system in which presently under correction is unable to correct.

C2PO: C2 pointer indication output. Synchronizes with audio data output.

RFCK: Read frame clock output. 7.35 kHz of X'tal system.

WFCK: Write frame clock output. 7.35 kHz when locked on to X'tal system.

$\overline{PLCK}$: VCO/2 output. When locked to EFM signal, f = 4.3218 MHz.

UGFS: Output of unprotected frame sync pattern.

GTOP: Indication output of frame synchro in protected condition.

RAOV: Overflow and underflow indication outputs of ±4 frame jitter absorbing RAM.

C4LR: Strobe signal. At DF ON, 352.8 kHz. At CXD1125Q or DF OFF, 176.4 kHz.

$\overline{C21O}$: Reverse output of C210.

C21O: Bit clock output. At DF ON, 4.2336 MHz. At CXD1125Q or DF OFF, 2.1168 MHz.

DATA: Serial data output of audio signal.

PARTS LIST OF P.W.BOARD

SIG. AUDIO UNIT (2U-1867A/2U-1868)

IC100	262 0842 002	CXA-1081S (S-DIP)	
IC102	262 1008 007	CXA-1182S (S-DIP)	
IC103,104 304,305	263 0611 003	NE4558N	
IC200	262 1175 008	M50957-194SP	
IC201	263 0652 907	PST529CT	
IC202	262 1120 002	PC74HC00P	
IC203	262 1139 002	SM5818AP	
IC300,301	262 1171 002	PCM61P	
IC302,303	263 0655 001	PC74HC4066P	
IC307	262 1176 007	PC74HC04P	
IC309	263 0198 005	NJM4556D	
IC310,311	262 1178 005	PC74HC164P	
IC312,313	262 1177 006	PC74HC74P	
IC501	263 0553 006	NJM7805FA	
IC502	263 0501 003	NJM79M05FA	
IC503,504	268 0073 905	ICP-N15T	
TR101	272 0025 907	2SB562 (C)	
TR103	274 0145 003	BD935F	
TR104,106 108,110, 112,120	272 0101 902	BC369	
TR105,107 109,111 121	274 0144 907	BC368	
TR113,114 309	269 0025 901	RN1202 (10K-10K) T	
TR300,301	273 0178 925	2SC1740 (R/S) T-70	
TR302-307	274 0124 901	2SD1504 (E/F) TPE2	
TR308	269 0026 900	RN2202 (10K-10K) T	
TR310,501	271 0387 901	JC557 A/B	
D201-208	276 0049 914	1S2076ATE	
D301	276 0432 903	1SS270ATE	
D501-506	276 0552 904	1SR139-200T-32	
D507	276 0501 928	HZ33L-3TD	
D508	276 0051 973	HZ7C-2TE	

RESISTOR GROUP

VR101 102,104	211 6064 051	V06PB203	
VR103	211 6064 006	V06PB103	
VR105	211 6064 064	V06PB102	
VR300,301	211 6064 022	V06PB104	

CAPACITOR GROUP

(Ceramic)

C103	253 4537 911	CC45SL1H300J	30pF/50V
C105,106 140	253 4536 909	CC45SL1H100D	10pF/50V
C111,128 146,252 327,396	253 1181 904	CK45F1H103Z	0.01μF/50V
C120	253 1179 990	CK45B1H561K	560pF/50V

177,194			
195,202			
203,235			
254,312			
313,322			
331			
334-337			
392-395			
610			
620-622			
C130,147	253 1180 921	CK45B1H102K	0.001μF/50V
C136,143 160,253	253 4538 949	CC45SL1H101J	100pF/50V
C148	253 1179 929	CK45B1H151K	150pF/50V
C220	253 1179 903	CK45B1H101K	100pF/50V
C250	253 4535 955	CC45SL1H050C	5pF/50V
C251	253 4535 939	CC45SL1H030C	3pF/50V
C304,305	253 1179 932	CK45B1H181K	180pF/50V
C306,307 600,601	253 1179 987	CK45B1H471K	470pF/50V
C310,311	253 4443 908	CC45SL1H201J	200pF/50V
C390,391	253 4431 907	CC45SL1H620J	62pF/50V
C603,604	253 4537 089	CC45SL1H560J	56pF/50V

(Electrolytic)

C101,326	254 4260 964	CE04W1H3R3M	3.3μF/50V
C104,318 319,332	254 4254 941	CE04W1C101M	100μF/16V
C115,117	254 4260 919	CE04W1HR22M	0.22μF/50V
C126	254 4337 910	CE04W1H6R8M	6.8μF/50V
C131,161	254 4260 948	CE04W1H010M	1μF/50V
C132	254 4254 912	CE04W1C220M	22μF/16V
C141	254 3055 905	CE04D1V4R7MBP	4.7μF/35V
C190	254 4254 925	CE04W1C330M	33μF/16V
C302,303	254 4254 954	CE04W1C221M	220μF/16V
C500,501	254 4255 704	CE04W1C332MC	3300μF/16V
C504	254 4262 946	CE04W1J470M	47μF/63V
C505	254 4261 921	CE04W1H101M	100μF/50V
C507	254 4260 906	CE04W1H0R1M	0.1μF/50V
C510,511	254 4254 954	CE04W1C221M	220μF/16V

(Film)

C102	255 1205 909	CQ93M1H272J	0.0027μF/50V
C110,125	256 1034 911	CF93A1H333J	0.033μF/50V
C113,121	255 1206 908	CQ93M1H332J	0.0033μF/50V
C114,116 134	255 1212 905	CQ93M1H103J	0.01μF/50V
C122	255 1207 907	CQ93M1H392J	0.0039μF/50V
C123	255 1204 900	CQ93M1H222J	0.0022μF/50V
C124	256 1034 966	CF93A1H823J	0.082μF/50V
C127,135 142	256 1034 979	CF93A1H104J	0.1μF/50V
C137,308 309	255 1200 904	CQ93M1H102J	0.001μF/50V
C139	255 1209 905	CQ93M1H562J	0.0056μF/50V
C145	256 1035 910	CF93A1H224J	0.22μF/50V
C314,315	255 1210 907	CQ93M1H682J	0.0068μF/50V

NOTE FOR PARTS LIST

- Part indicated with the mark "○" are not always in stock and possibly to take a long period of time for supplying, or it is discontinued.
  When ordering of part, clearly indicate "○" and "1" (1) to avoid late supplying.
- Ordering part without stating its part number can not be supplied.
- Part indicated with the mark "★" is not illustrated in the exploded view.

WARNING:

Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

• Resistors

Ex.: RN 14K 2E 182 G FR

Type	Shape and performance	Power	Resistance ★	Allowable error	Others
RD : Carbon RC : Fixed RS : Metallic film RW : Winding RN : Metal film RK : Metal mixture		2B : 1/4W 2E : 1/4W 2H : 1/2W 3A : 1W 3D : 2W 3F : 3W 3H : 5W		F : ±1% G : ±2% J : ±5% K : ±10% M : ±20%	P : Pulse-resistant type NL : Low noise type NB : Non-burning type FR : Fuse resistor F : Lead wire forming

★ Resistance

1 8 2 ⇨ 1800Ω = 1.8kΩ

- 2 — Indicates number of zeros after effective number
- 18 — 2-digit effective number, decimal point indicated by R.
- Units: Ω

• Capacitors

Ex.: CE 04W 1H 2R2 M BP

Type	Shape and performance	Dielectric strength	Capacity ★	Allowable error	Others
CE : Aluminum foil electrolyte CA : Aluminum solid electrolyte CS : Tantalum electrolyte CQ : Film CK : Ceramic CC : Ceramic CP : Oil CM : Mica CF : Metallized CH : Metallized		0J : 6.3V 1A : 10V 1C : 16V 1E : 25V 1V : 35V 1H : 50V 2A : 100V 2B : 125V 2C : 160V 2D : 200V 2E : 250V 2H : 500V 2J : 630V		F : ±1% G : ±2% J : ±5% K : ±10% M : ±20% Z : +80% −20% P : +100% −0% C : ±0.25pF D : ±0.5pF — : Others	HS : High stability type BP : Non-polar type HR : Ripple-resistant type DL : For charge and discharge HF : For assuring high frequency U : UL part C : CSA part W : UL-CSA type F : Lead wire forming

★ Capacity

2 R 2 ⇨ 2.2μF

- 2 — 1-digit effective number, decimal point indicated by R.
- 2R2 — 2-digit effective number, decimal point indicated by R.
- Units: μF, (for P, pF (μμF)
- When the dielectric strength is indicated in AC, "AC" is included after the dielectric strength value.

PARTS LIST OF EXPLODED VIEW

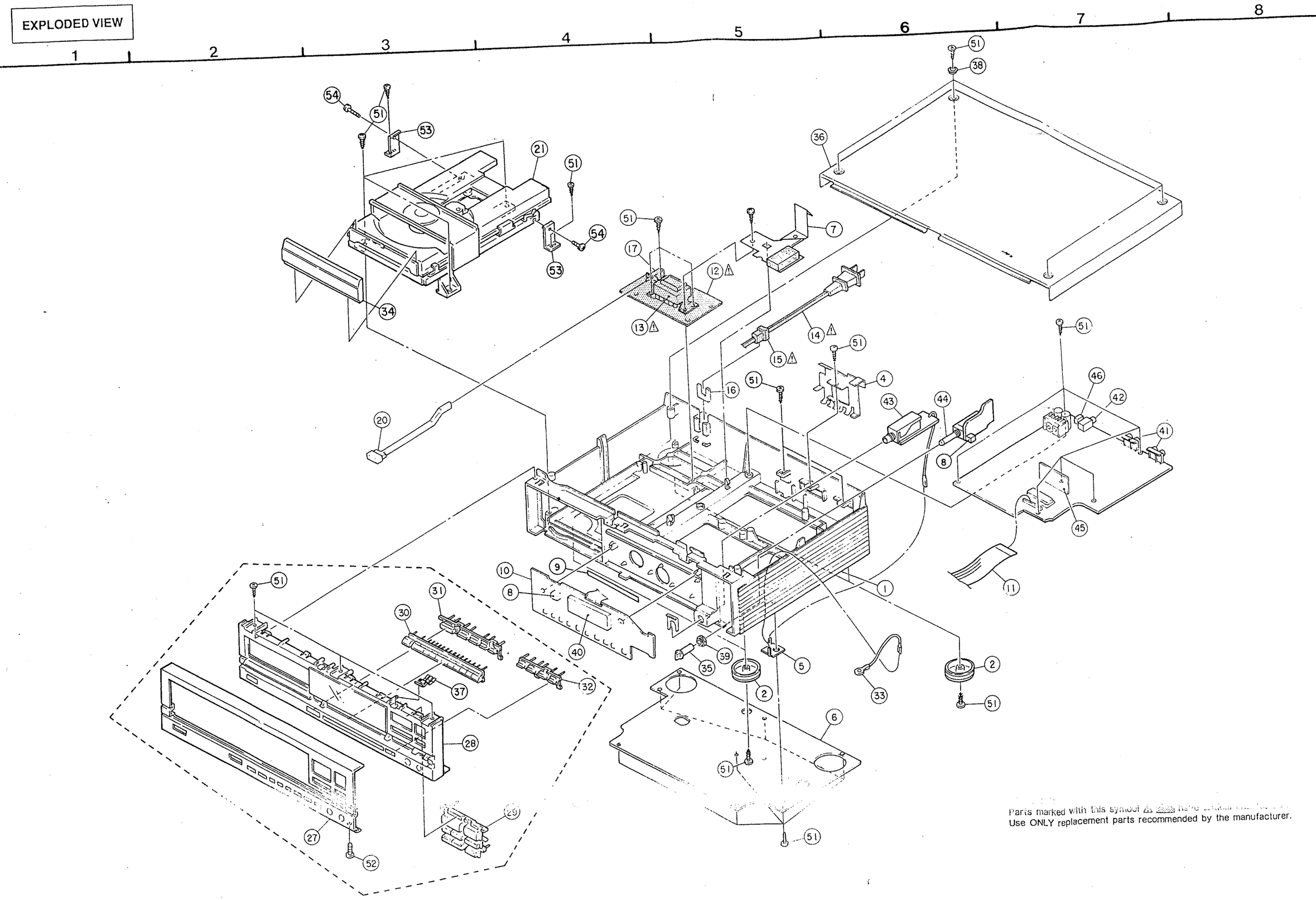
1	103 1260 106	CHASSIS	EUROPE,U.K.
	103 1260 119	CHASSIS	EUROPE Gold
2	104 0214 004	FOOT ASS'Y	
4	412 2495 311	EARTH BRACKET	
5	412 2620 018	EARTH PLATE H.P	
6	105 0838 108	BOTTOM COVER	
7	414 0501 106	SHIELD SHEET ASS'Y	
8	129 0154 008	SUPPORT	
9	122 0176 014	SHEET	
10	2U-1867A	SIG. AUDIO UNIT (or 2U-1868)	
11	009 0011 009	31P FFC	
⚠ 12	2U-1802A	POWER S. (EUROPE) UNIT	EUROPE
⚠	2U-1802 D	POWER S. (E.K) UNIT	U.K.
⚠ 13	233 5734 010	POWER TRANS (E2)	
⚠ 14	206 2073 002	AC CORD WITH PLUG	EUROPE
⚠	206 2024 006	AC CORD WITH LABEL	U.K.
⚠ 15	445 0056 008	CORD BUSH	
16	412 2008 012	BUSHING PLATE	
17	212 4697 009	POWER SWITCH	
20	113 1067 267	P.SW. LEVER ASS'Y	EUROPE, U.K.
	113 1067 254	P.SW. LEVER ASS'Y	EUROPE Gold
21	GEN 0319	CD MECH. UNIT	
26	GEN 0535-3	FRONT PANEL SUB ASS'Y	EUROPE, U.K.
	GEN 0558	FRONT PANEL SUB ASS'Y	EUROPE Gold
27	144 1826 457	FRONT PANEL	EUROPE, U.K.
	144 1826 460	FRONT PANEL	EUROPE Gold
28	146 1054 102	SUB PANEL ASS'Y	EUROPE, U.K.
	146 1054 115	SUB PANEL ASS'Y	EUROPE Gold
29	113 1078 366	KNOB FRAME ASS'Y	EUROPE, U.K.
	113 1078 353	KNOB FRAME ASS'Y	EUROPE Gold
30	113 1176 323	TEN KEY KNOB	EUROPE, U.K.
	113 1176 310	TEN KEY KNOB	EUROPE Gold
31	113 1171 425	KNOB SERIES (A)	EUROPE, U.K.
	113 1171 412	KNOB SERIES (A)	EUROPE Gold
32	113 1172 123	KNOB SERIES (B)	EUROPE, U.K.
	113 1172 110	KNOB SERIES (B)	EUROPE Gold
33	009 0014 019	1P 3T-FAS WIRE	
34	146 1044 125	LOADER PANEL	EUROPE, U.K.
	146 1044 138	LOADER PANEL	EUROPE Gold
35	112 0475 035	H/P KNOB	EUROPE, U.K.
	112 0475 051	H/P KNOB	EUROPE Gold
36	102 0394 009	TOP COVER	EUROPE, U.K.
	102 0394 012	TOP COVER	EUROPE Gold
37	412 2519 116	RADIATION. E. PLATE	
38	146 0772 003	TOP COVER WASHER	EUROPE, U.K.
	146 0772 016	TOP COVER WASHER	EUROPE Gold
39	443 0963 108	VR NUT	
40	393 4079 007	FIP 9BLM7A (FL TUBE)	
41	204 8179 014	2P PIN JACK	
42	204 8273 004	1P RCA PIN JACK	
43	204 8209 007	H/P JACK	
44	211 0544 108	V1620V25FA103M	
45	2U-1860C	DIGITAL SIG. PRO. UNIT	
51	473 7508 018	3x10 CBTS(P)-B	
51-1	473 7810 005	3x10 CBTS(P)-N	EUROPE Gold
52	473 7002 018	3x8 CBTS(S)-Z	
	513 1469 049	EUROPE RATING SHEET	EUROPE
	513 1482 026	EK RATING SHEET	U.K.
53	412 2806 007	LEG	
54	473 7001 035	2.6x6 CBTS(S)-Z	

PARTS LIST OF PACKING & ACCESSORIES

	504 0123 003	STYRENE PAPER
	505 0131 050	CABINET COVER
	503 0771 003	CUSHION ASS'Y
	501 1334 155	CARTON CASE
	505 0178 000	POLY COVER
	511 1855 000	INST. MANUAL
	203 2223 002	2P PIN CORD
	499 0142 003	RC-220
	394 0021 007	BATTERY (SUM-3)
	513 1389 006	CONTROL CARD BASE
	513 1349 004	THERMAL CARBON FILM
	513 1513 005	E2 LASER CAUTION
	513 0985 003	INST LABEL

WARNING:
Parts marked with ⚠ and/or shading have special characteristics important to safety.
Be sure to use the specified parts for replacement.

EXPLODED VIEW



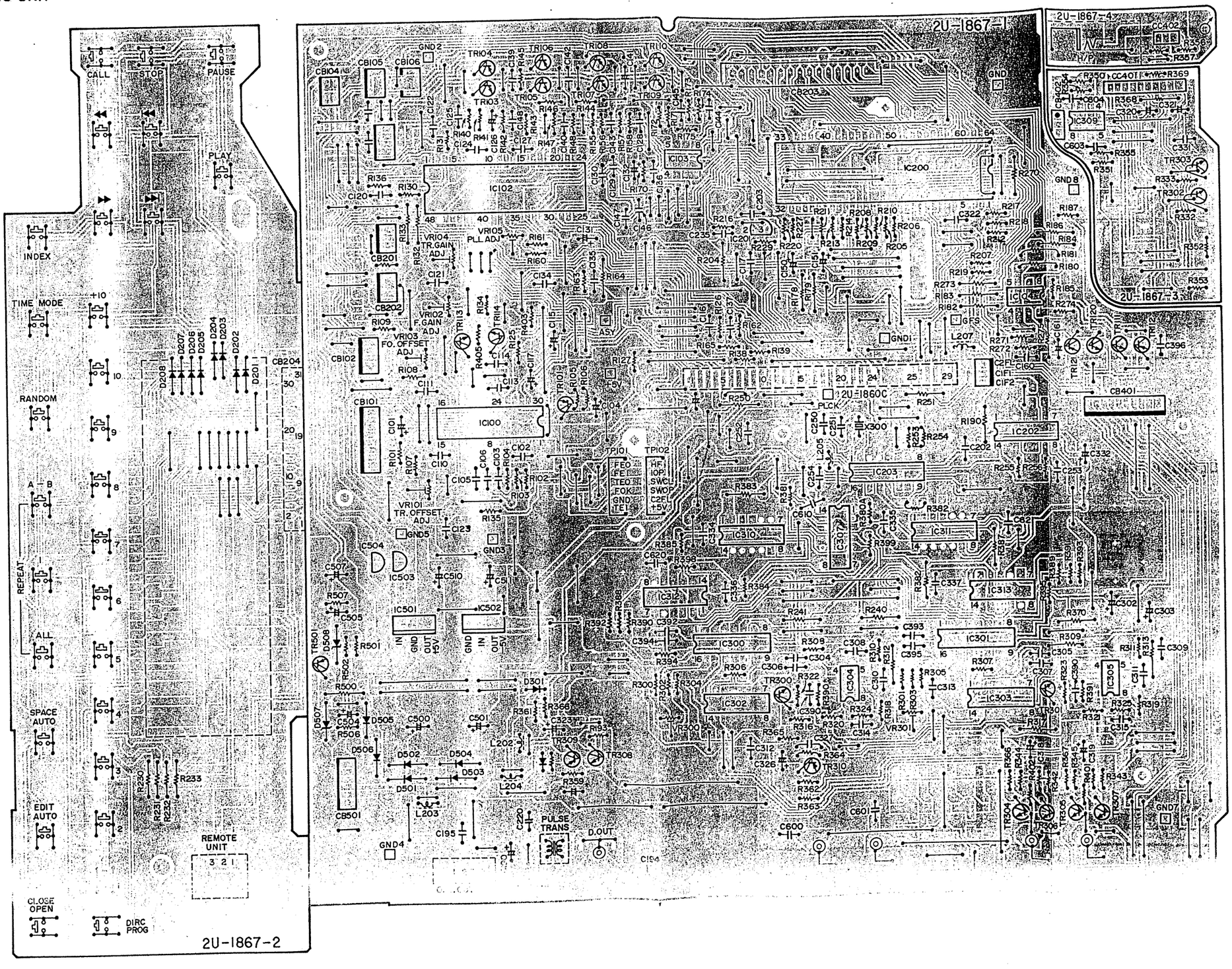
Parts marked with this symbol ⚠ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

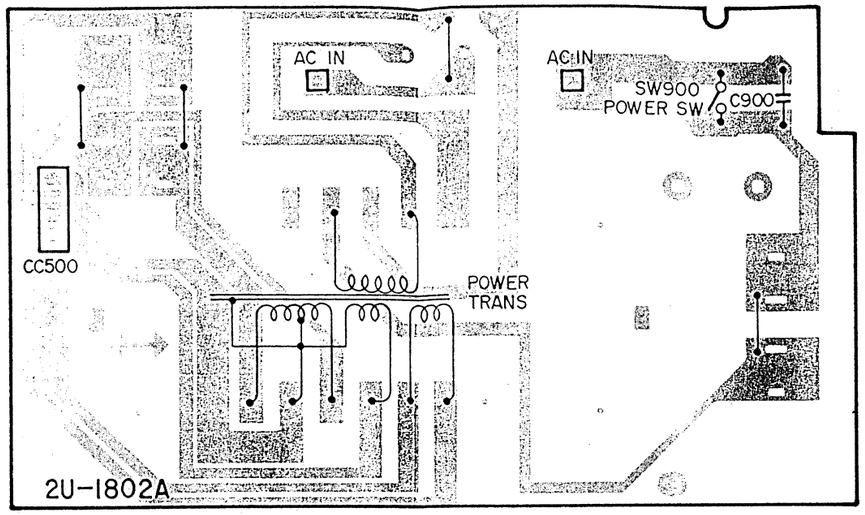
PARTS LIST OF MECHA UNIT

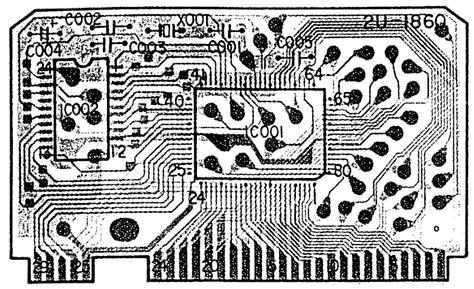
1	S76 8586 201	+BVTT 2.5 x 6
2	S26 4217 001	HINGE HOLDER
3	S26 4216 401	HINGE
4	S26 4216 001	SHAFT
5	S26 4213 702	CONE COIL SPRING (B)
6	S76 4213 902	CONE COIL SPRING (A)
7	S26 7215 801	INSULATOR
8	S26 4216 902	ROLLER
9	S26 4215 901	PLATE (T)
10	S26 4214 201	SCREW WITH WASHER
11		
12	S76 8553 219	+B 2.6 x 5 TYPE 2 (WITHOUT GUTTER)
13	SX2 6421 081	MAGNET ASS'Y
14	S26 4216 501	CHUCK CHASSIS
15	S26 4243 201	CHUCKING PULLEY
16	S26 4215 602	TRAY (LOADER FRAME)
17		GEAR COVER
18	S76 8553 519	+B 2.6 x 10 TYPE 2 (WITHOUT GUTTER)
19	S48 1255 401	WASHER
20	S26 4215 403	DRIVE GEAR
21	S26 4215 301	CONTROL CAM
22	S76 8585 101	+BVTT 2 x 4
23	S15 7131 211	LEAF SWITCH
24	S35 5870 821	FIX WASHER
25	S26 4214 801	GEAR
26	S36 5338 701	LM BELT
27	S49 1373 101	LOADING PULLEY
28	S76 2177 500	+B 2.6 x 3
29	SX2 6413 361	MOTOR ASS'Y
30	S16 2479 321	MOTOR BOARD
31	S26 4216 101	TRAY HOLDER (FRONT)
32	S76 8578 101	+PTT 2 x 4
33	S76 4216 203	TRAY HOLDER (REAR)
34	S76 4214 602	TRAY GUIDE (RIGHT)
35	S76 4214 702	TRAY GUIDE (LEFT)
36	S76 8554 719	+B 3 x 10 TYPE 2 (WITHOUT GUTTER)
37	S26 4251 001	MD FIX BOSS (RIGHT)
38	S76 4251 201	MD FIX BOSS (REAR)
39	S76 4251 101	MD FIX BOSS (LEFT)
40	S26 4217 301	LINK PLATE
41	S26 4213 302	BOSS
42	SX2 6421 091	STOPPER LINK ASS'Y
43	S26 4217 201	SPACER
44	S33 1950 111	+PTPWH 2.6 x 8
45	S15 6472 111	CONNECTOR PIN (5P)
46	S76 4212 501	DAMPER
47		MAIN CHASSIS ASS'Y
48		SUB CHASSIS ASS'Y
49	S26 4215 703	FRONT TAPE
101	S49 1043 102	SLIDE SHAFT
102	499 0100 003	KSS-150A
103	S26 4138 601	O-SPECIAL TAPPING SCREW 2 x 5
104	S26 4144 302	SLIDE HOLDER
105	S76 2125 535	+P 2 x 5
106		GEAR COVER
107	SX2 6413 441	SLED MOTOR GEAR ASS'Y
108	S33 0380931	O-SPECIAL SCREW M1.7 x 3
109	S26 4140 402	GEAR (A)
110	S26 4140 306	GEAR (B)
111	S26 4144 701	O-1 KIND +STP2.6 x 8
112	S26 4144 802	SHAFT CLAMPER
113	SX2 6413 481	SP MOTOR ASS'Y
114	S15 7082 222	LEAF SWITCH
115	S16 2826 311	MOTOR BOARD
116	S15 6472 011	CONNECTOR (4P)
117		STOPPER

P.W.BOARD

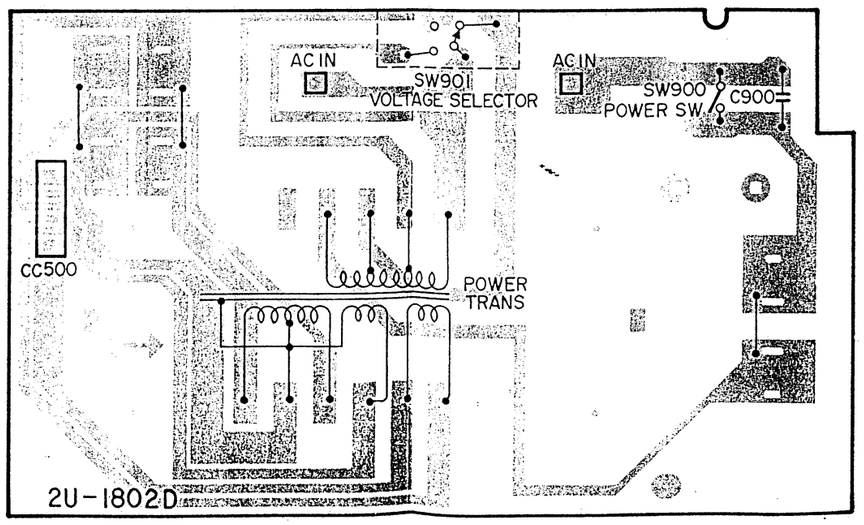
2U-1867A/1868 SIG. AUDIO UNIT



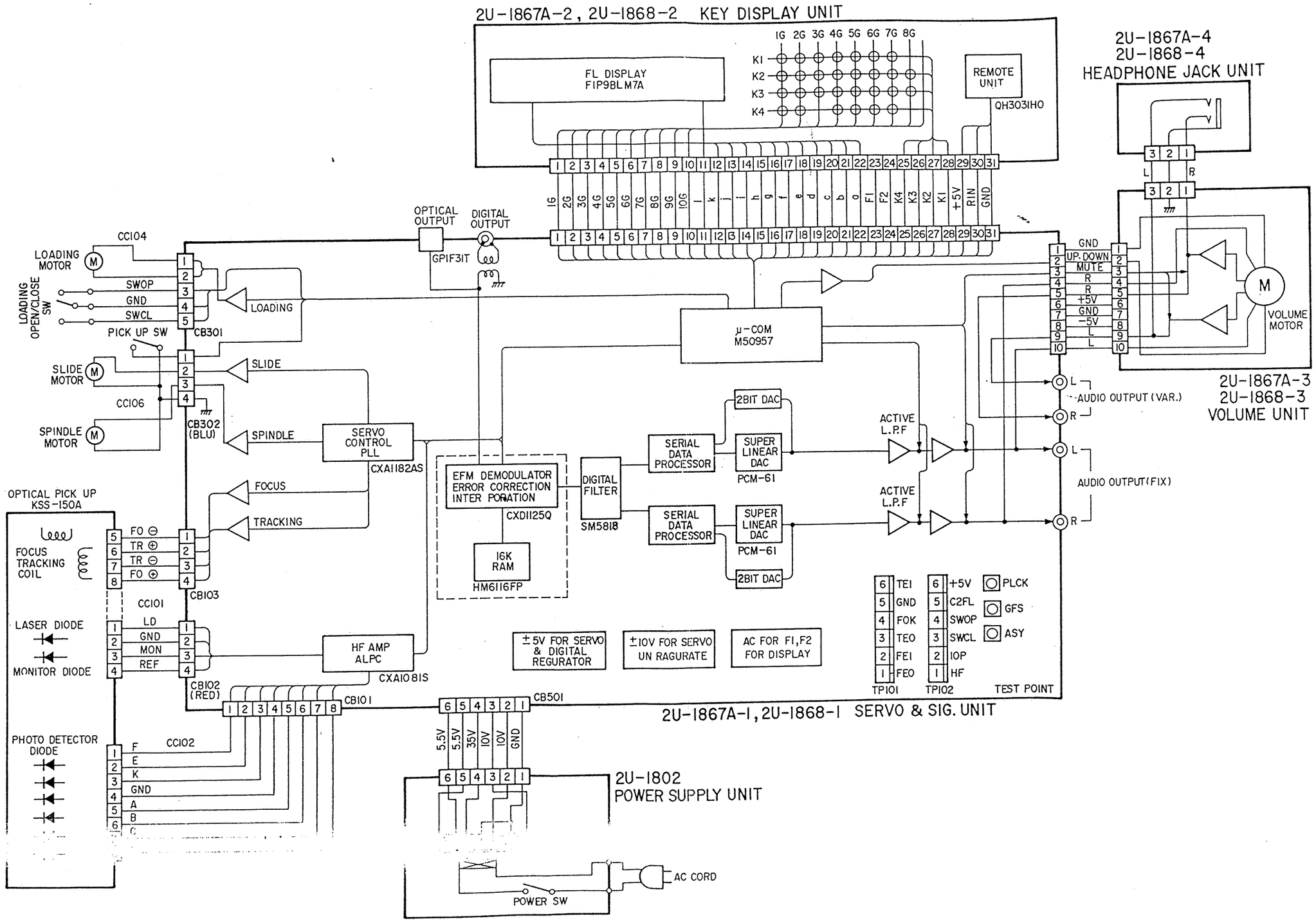




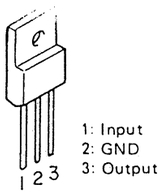
2U-1802D POWER SUPPLY UNIT (U.K.)



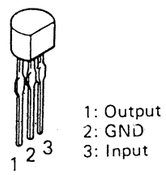
WIRING DIAGRAM



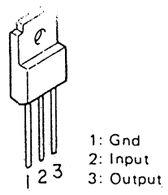
SEMICONDUCTORS



NJM7805FA



PST529C



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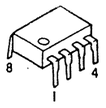

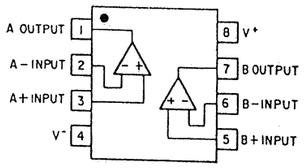

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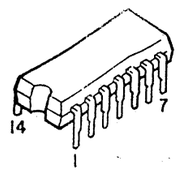
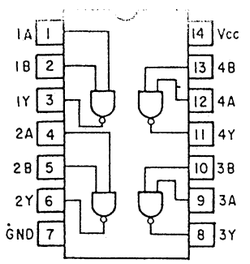
NE4558



PC74HC00P
PC74HC4066
PC74HC74
PC74HC164



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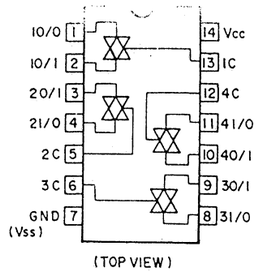
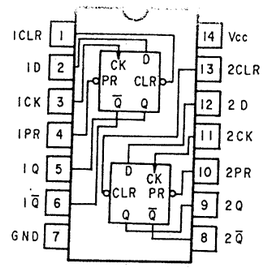


(TOP VIEW)

PC74HC4066



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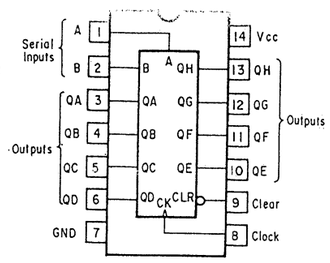
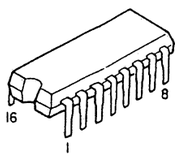


PC74HC164



SM5818AP
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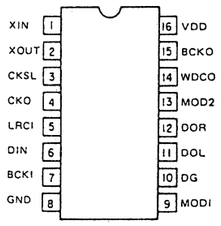

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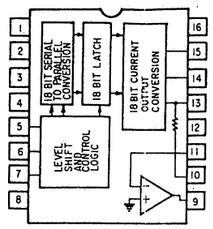

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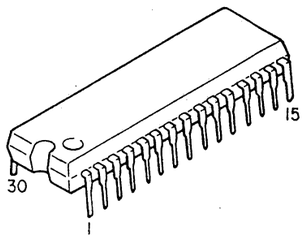
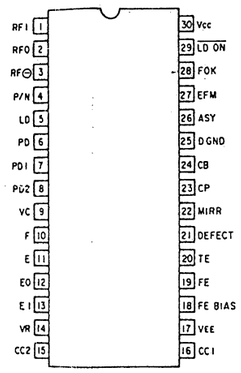
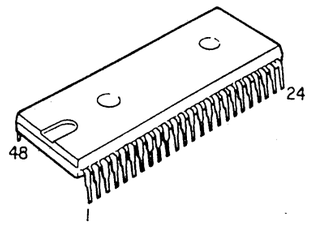
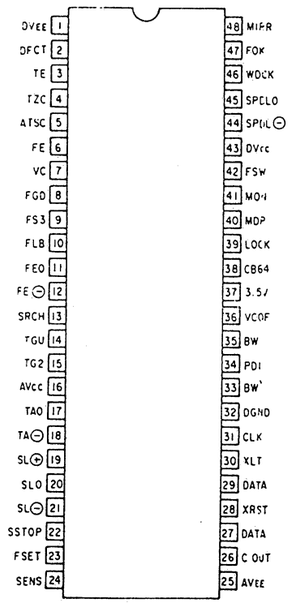


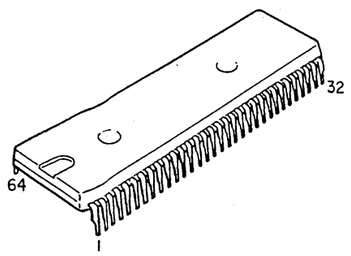
CXA1081S



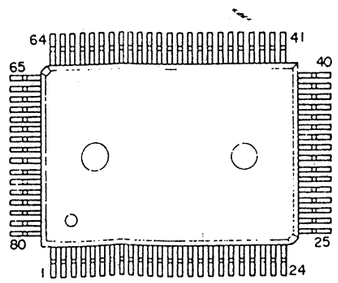


CXA1182AS



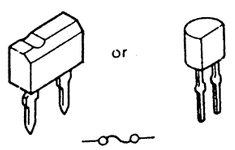


M50957



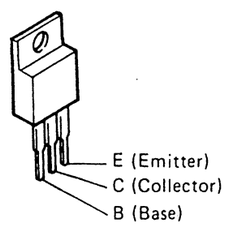
CXD1125

• PROTECTOR

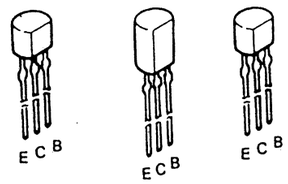


ICP-F15 ICP-N15

• TRANSISTORS

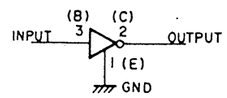


BD935F



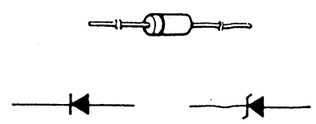
2SC1740
2SC2878
2SD1504(E/F)

2SB562
BC368
BC369
JC557



RN1202 (10k-10k) NPN
RN2202 (10k-10k) PNP

• DIODES



1S2076A
1SS270A
1SR139
DSM1A2 TYPE2

SCHEMATIC DIAGRAM

1 2 3 4 5

2U-1860C DIGITAL SIG.PRO UNIT

2U-1868-I SIG. AUDIO

DIGITAL OUTPUT (OPTICAL) GPIF3IT (COAXIAL)

IC002 HM6116FP-4

IC307 PC74HC04P (3/3)

IC200 M50957-194SP

IC001 CXD-1125Q

IC201 PST529C

IC203 SM5818AP DIGITAL FILTER

IC310 PC74HC164P

IC311 PC74HC164P

IC312 PC74HC74P

IC313 PC74HC74P

IC307 PC74HC04P(1/3)

IC103 NE4558N

IC104 (1/2)

IC100 CXA1081AS

IC102 CXA1182AS

CB301 (1/2)

CB302 (BLU)

CB101

CB103

CC101

CC102

LASER P.U

LOADING MOTOR

SPINDLE MOTOR

SLIDE MOTOR

INMOST SW

FOCUS

TRACKING

VR

PD

GND

LD

SPINDLE DRIVE

LOADING DRIVE

TRI07,108 SLIDE DRIVE

TRI03,104 FOCUS DRIVE

TRI05,106 TRACKING DRIVE

TRI09 BC368

TRI10 BC369

TRI11 BC368

TRI12 BC369

TRI07 BC368

TRI08 BC369

TRI05 BC368

TRI06 BC369

TRI01 2SB562

TRI03 BD935F

TRI04 BC369

TRI14 RN1202

TRI13 RN1202

OPEN: 2.8V
CLOSE: −2.8V

OPEN
CLOSE
HOLDER SW

PLAY: 5V
STOP, SCRATCH DETECTION: 0V

PLAY: 5V
STOP, SCRATCH DETECTION: 0V

PLAY: 0.4V
DRIVE: 1.3V
BRAKE: −1.3V
STOP: 0V

PLAY: 4.3218MHz
STOP: ÷ 5MHz

PLAY: 7.35kHz 5V 0V

PLAY: 2.5V
STOP: 0V
544 μsec

PLAY: IV (max 2.5V) 0V (max 1.5V)

FOCUS SEARCH: 0.5~1.5V 0V −0.7V

EYE PATERN PLAY IV 0V STOP: −0.2V

1 TRACK JUMP (PAUSE) 1.5V −1.5V

TRACKING OFFSET ADJ. 0.3V −0.3V

FOCUS OFFSET ADJ.

SCRATCH DETECTION: +5V OTHER: −5V

TRACK JUMP 5V 0V PLAY, STOP: 0V

PLAY: +0.5V −0.5V 36 μsec STOP: 0V

(SERVO DATA LINE)

(DIGITAL CONTROL DATA LINE)

(SERIAL AUDIO DATA LINE)

SWCL SWOP

EMPH MUTE

VR UP VR DN

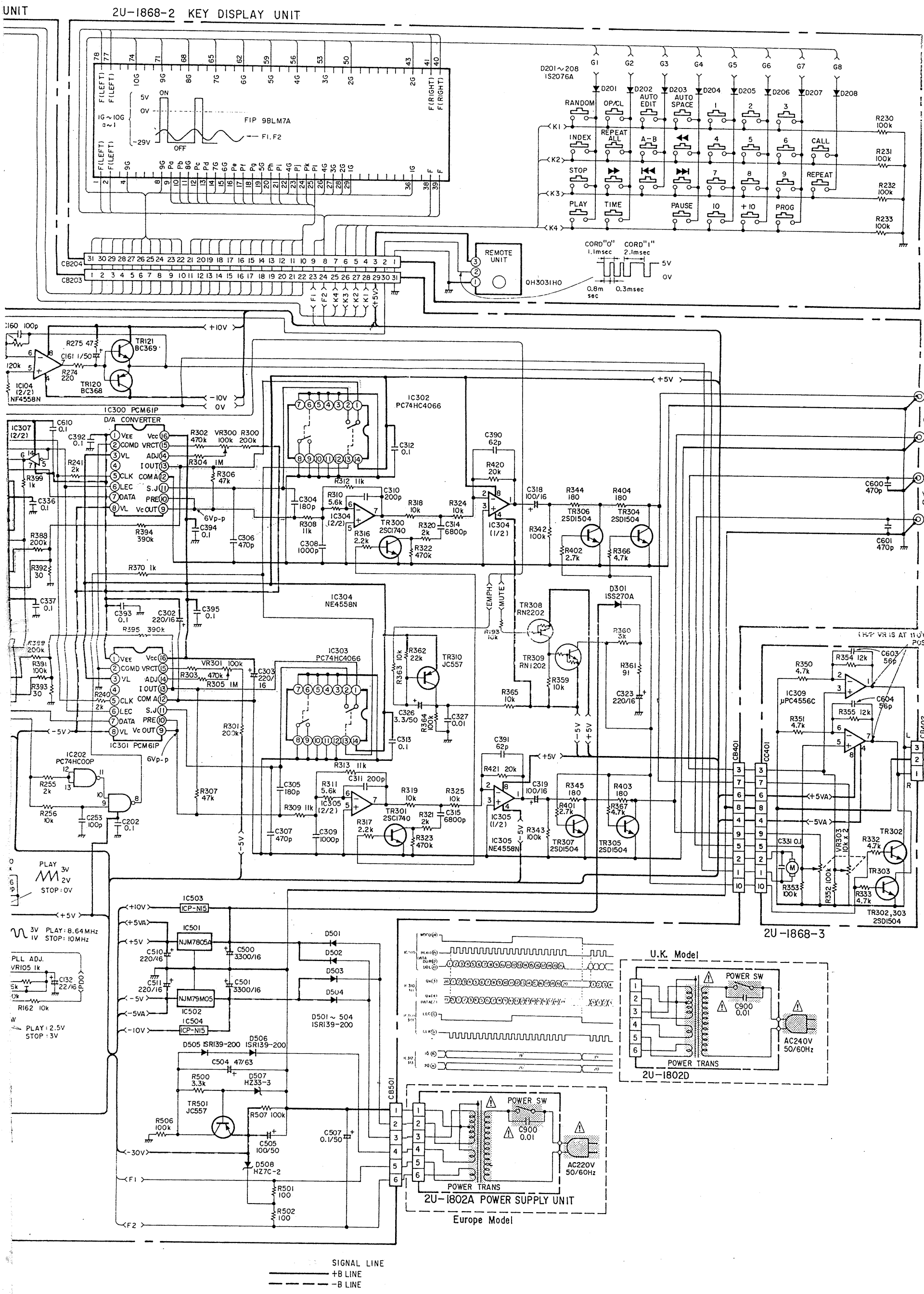
WARNING:
Parts marked with this symbol ⚠ ▨ have critical characteristics.
Use ONLY replacement parts recommended by the manufacturer.

CAUTION:
Before returning the unit to the customer, make sure you make either (1) a le
check. If the leakage current exceeds 0.5 milliamps, or if the resistance from cha
ohms, the unit is defective.

WARNING:
DO NOT return the unit to the customer until the problem is located and corrected

UNIT

2U-1868-2 KEY DISPLAY UNIT



akage current check or (2) a line to chassis resistance
ssis to either side of the power cord is less than 240 k

NOTES
ALL RESISTANCE VALUES IN OHM K = 1,000 OHM M = 1,000,000 OHM
ALL CAPACITANCE VALUES IN MICRO FARAD P = MICRO-MICRO FARAD
EACH VOLTAGE AND CURRENT ARE MEASURED AT NO SIGNAL INPUT CONDITION.
CIRCUIT AND PARTS ARE SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

Ref. No.	Part No.	Part Name	Remarks
X300	399 0036 013	X'TAL (16.9344MHz)	
CB101	205 0343 087	8P CONN. BASE (KR-PH)	PU-PD
CB102	205 0321 041	4P CONN. BASE (RED)	PU-LASER
CB103	205 0343 045	4P CONN. BASE (KR-PH)	PU-FD,TD
CB203,204	205 0549 001	31P FFC CON. BASE	DISPLAY
CB301	205 0343 058	5P CONN. BASE (KR-PH)	LOADER
CB302	205 0406 047	4P CON. BASE (KR-PH)	MOTOR
CB401	205 0375 000	10P CON. BASE (KR-PH)	VR. P.W.B.
CB402	205 0343 032	3P CONN. BASE (KR-PH)	H/P JACK
CB501	205 0343 061	6P CONN. BASE (KR-PH)	POWER
CC203	009 0011 009	31P FFC	DISPLAY
TP101,102	205 0190 065	6P NH CONN. BASE	
★	231 8063 009	PULSE TRANS	

2U-1860C DIGITAL SIG. PRO. UNIT

IC001	262 0736 008	CXD1125	
IC002	262 0673 006	HM6116FP-4	
C003	253 1181 904	CK45F1H103Z	0.01µF/25V
C004	254 4254 051	CE04W1C221M	220µF/16V
C005	253 1179 903	CK45B1H101K	100pF/50V

* The carbon resistors at 1/4W, 1/6W are not listed herein.

2U-1802A POWER SUPPLY UNIT (European)

Ref. No.	Part No.	Part Name	Remarks
⚠C900	253 8014 702	CK45F2GAC103M	0.01µF/400VAC
⚠SW900	212 4697 009	POWER SWITCH	
CB501	204 0286 002	6P KR-DA CORD	
⚠	206 2073 002	AC CORD WITH PLUG	

2U-1802D POWER SUPPLY UNIT (U.K.)

Ref. No.	Part No.	Part Name	Remarks
⚠	233 5665 010	POWER TRANS (E2)	
⚠C900	253 8014 702	CK45F2GAC103M	0.01µF/400VAC
⚠SW900	212 4697 009	POWER SWITCH	
CB501	204 0286 002	6P KR-DA CORD	
⚠	206 2024 006	AC CORD WITH LABEL	